Roland

DWX-4W

User's Manual

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2 Milling

3 Maintenance

4 Troubleshooting

EASY SHAPE Roland DENTAL SOLUTION

Roland DG Corporation has developed a special website introducing dental solutions. For the latest information regarding this machine (including manuals), see our special Easy Shape website (http://www.rolandeasyshape.com).

Roland DG Corporation

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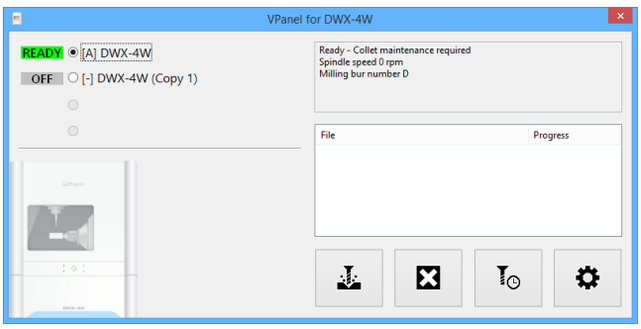
Displaying or Exiting VPanel

What is VPanel?



VPanel is an application that allows milling machine operation on a computer screen. It has functions to output milling data, perform maintenance, and make various corrections. It also displays milling machine error messages.

☞ "Setup Guide" ("Installing the Software")

Displaying VPanel

Click (VPanel icon) in the task tray on the desktop.

VPanel will be displayed. If you cannot find in the task tray, start the program from the Windows [Start] screen (or the [Start] menu).

Starting from the Windows [Start] screen (or [Start] menu)

Windows 8.1

Click on the [Start] screen, and from the Apps screen, click the [VPanel for DWX-4W] icon under [Roland DWX-4W].

Windows 8

Right-click the background in the [Start] screen to display the app bar, and then click [All Apps]. Click the [VPanel for DWX-4W] icon under [Roland DWX-4W].

Windows Vista/7

From the [Start] menu, click [All Programs] (or [Program]), then [Roland DWX-4W]. Then click [VPanel for DWX-4W].

VPanel serves as resident software.

VPanel works as resident software that is constantly working to manage the milling machine, send e-mails*, and so on. It is recommended to configure the settings so that VPanel starts automatically when the computer starts. (☞P. 8 ""Settings" Tab") Also, clicking in the upper right corner of the window will cause the window to disappear from the screen, but the program will not be exited. While VPanel is running, is constantly displayed in the task tray.

* E-mails are sent to notify of milling completion or errors that occur. (☞P. 10 ""Mail" Tab")

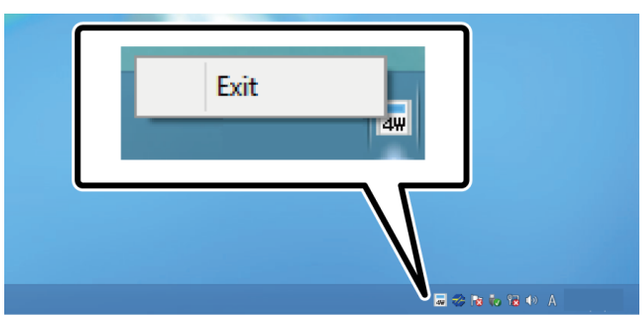
VPanel Display in the Task Tray

When the VPanel icon is displayed in the task tray, the status of a connected milling machine is always monitored. The display of the VPanel icon changes depending on the status of the milling machine. The meanings of the displays are shown below.

	Indicates that at least one of the connected milling machines is on (is online). Messages are displayed automatically if an error occurs, during milling, and in similar situations. Even after the message disappears, if you hover the mouse pointer over this icon, the status of each connected machine (such as Ready, Milling, Finished, Completed, or Offline) will be displayed. Messages prompting you to perform maintenance (such as "Spindle run-in (long) required") will also be displayed. In these situations, perform the maintenance work indicated by the message. ☞ P. 23 "STEP 0: Spindle Run-In (Short)", P. 32 "3. Maintenance"
	Indicates that all the connected milling machines are off.
	Indicates that an error has occurred on at least one of the connected milling machines. If you hover the mouse pointer over this icon, you can check which machine has the error.

Exiting VPanel

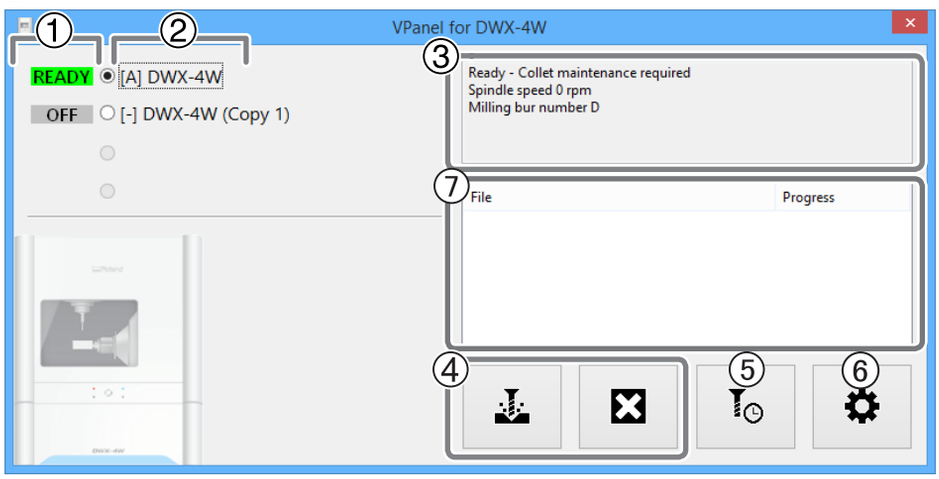
Right-click on in the task tray and click [Exit].



VPanel Window

Top Window

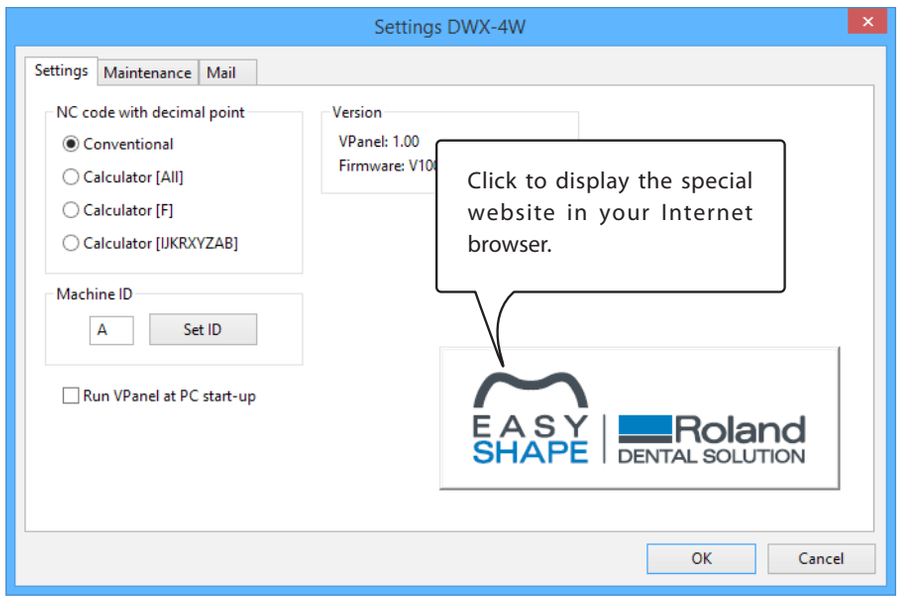
This is the VPanel top window. It displays the statuses of connected milling machines and an output list of milling data. Output of milling data can also be executed in this window.



No.	Displayed content	Details
①	Machine operation status	READY: Milling data can be received. OFF: The power of the milling machine is off. BUSY: Operation is in progress. ERROR: An error has occurred. PAUSE: Operation is paused. COVER: The front cover is open.
②	Name of connected machine	Displays the ID and name of a connected machine. The IDs of machines with the power turned off are shown with [-]. If you click the name of a connected milling machine, the status light of the milling machine will flash. This enables you to check the connected machines when multiple machines are connected to the computer.
③	Milling machine status	Displays the operation status, spindle speed, milling time, etc. The information displayed is for the machine that has the radio button to the left of the name selected (the machine for which the round button to the left of its name displays a dot).
④	Output a file/cancel	Used when outputting or cancelling milling data. ☞ P. 25 "STEP 2: Outputting Milling Data"
⑤	Milling bur management	Used to select or register a milling bur for which you want to control the work time. ☞ P. 12 ""Milling bur management" Dialog Box"
⑥	Settings	Display the settings window. ☞ P. 8 ""Settings" Tab", P. 9 ""Maintenance" Tab", P. 10 ""Mail" Tab"
⑦	Output list	Displays the data being milled and the data awaiting processing. Also displays the milling progress.

"Settings" Tab

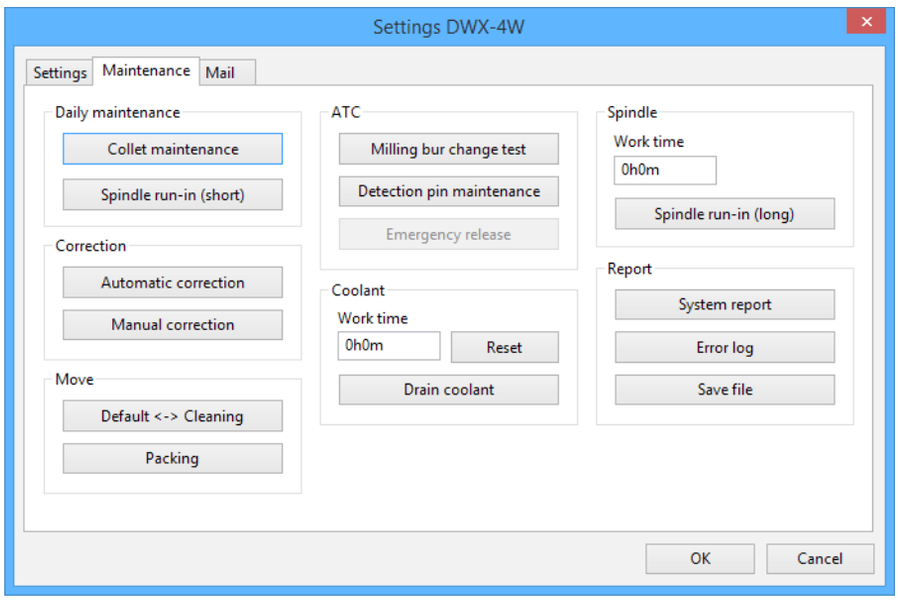
In this tab, you can configure the VPanel auto-startup settings, settings related to the NC code, and other settings. When more than one machine is connected, the machine selected in the top window becomes the target for the settings.



NC code with decimal point	Select the handling and interpretation of the decimal point in NC codes. With "Conventional," the unit is interpreted as millimeter (or inch) when there is a decimal point, and as 1/1000 millimeter (or 1/10000 inch) when there is no decimal point. With "Calculator," the unit is always interpreted as millimeter (or inch) regardless of whether there is a decimal point. Select the scope of the application when selecting "Calculator." Select an appropriate setting according to your CAM or NC code. ➢ Initial setting: Conventional
Machine ID	You can set an ID to a machine. This is useful when connecting multiple units. ➢ Initial setting: A ☞ "Setup Guide" ("Connecting Multiple Units") ***Important*** To change an ID, be sure to follow the procedure explained in the "Setup Guide."
Run VPanel at PC start-up	When this is checked, VPanel will start automatically when Windows starts up and the VPanel icon will be displayed in the task tray. ➢ Initial setting: Checked
Version	Displays the VPanel version and the firmware of connected machines (the machine selected in the top window when more than one machine is connected).

"Maintenance" Tab

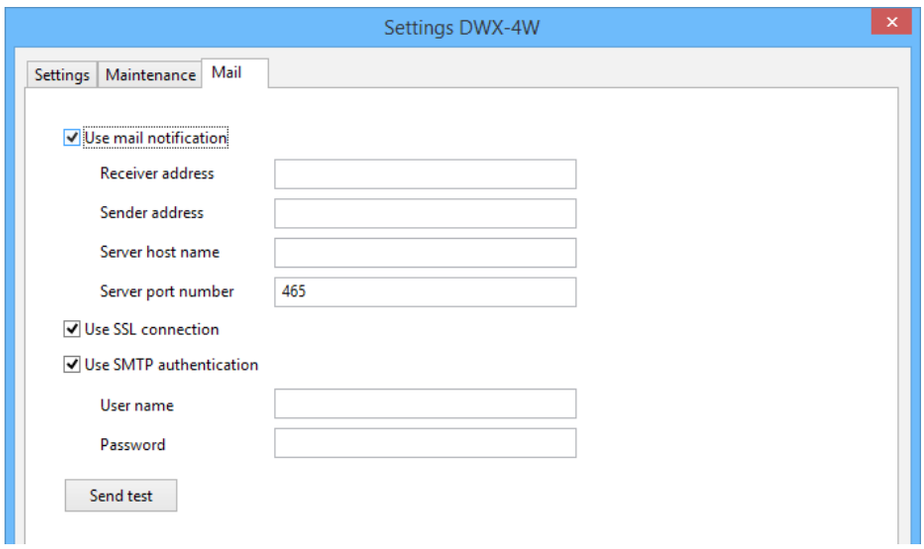
In this tab, you can perform operations related to maintenance, including automatic correction of the milling machine and system reporting. When more than one machine is connected, the machine selected in the top window becomes the target for the operations.



Daily maintenance	Perform collet and spindle maintenance before starting daily operations. ➢ P. 23 "STEP 0: Spindle Run-In (Short)"
Correction	Perform corrections to correct the rotary axis position. You can usually use "Automatic correction." ➢ P. 39 "Milling Machine Correction", P. 11 ""Manual correction" Dialog Box"
Move	Move the spindle unit and rotary axis. This function is used for cleaning and when repacking the machine. ➢ P. 34 "Cleaning after Milling Finishes", P. 59 "Attaching the Retainers"
ATC	Perform operation tests, maintenance, and other tasks that use the ATC magazine. If the milling bur is caught on the workpiece and the machine has stopped, you can forcibly release the milling bur by clicking [Emergency release] (enabled when the power is on with the front cover open). ➢ P. 45 "Milling Bur Change Test", P. 36 "Care of the Dummy Pin for Milling"
Coolant	Use this function to reset the coolant work time and to drain all of the coolant inside the machine. ➢ P. 55 "Draining the Coolant Lines"
Spindle	Displays the total work time of the spindle and can be used for long-term spindle management such as run-in when the spindle has not been used for a long time. ➢ P. 57 "Spindle Run-In (Long)"
Report	You can use these buttons to create reports such as machine system reports (including firmware version and total operating hours) and error reports. The various reports can be saved as files.

"Mail" Tab

In this tab, you can configure the settings so that you receive a notification e-mail when milling has finished, when an error has occurred, or when maintenance has finished. When more than one machine is connected, all of the machines become the targets for the settings.



Check [Use mail notification] to enter each item. For information on the input fields, see the table below.

Receiver address	The recipient's e-mail address. You can input more than one address by separating with a comma.
Sender address	The e-mail address used for the computer that is currently used to configure VPanel settings. (This becomes the sender's e-mail address. The address must be one that can send e-mails via the outgoing server mentioned below.)
Server host name	The outgoing e-mail server name (SMTP server name) of the e-mail software used on the computer that is currently used to configure VPanel settings.
Server port number	The outgoing e-mail server port number of the e-mail software used on the computer that is currently used to configure VPanel settings.
Use SSL connection	Check to use a security-protected connection (SSL). Configure the settings according to the e-mail software being used.
Use SMTP authentication **User name / Password**	Check to use authentication when sending e-mails. Input the user name and password for authentication. Configure the settings according to the e-mail software being used.

Click [Send test] to perform a sending test. If an e-mail with the following data is received at the address specified in "Receiver address," configuration of the settings is complete.

Subject: <Machine name> Body: Test

If the e-mail fails to send, the "Windows Script Host" error window will be displayed. Check the content in the input fields again.

Important

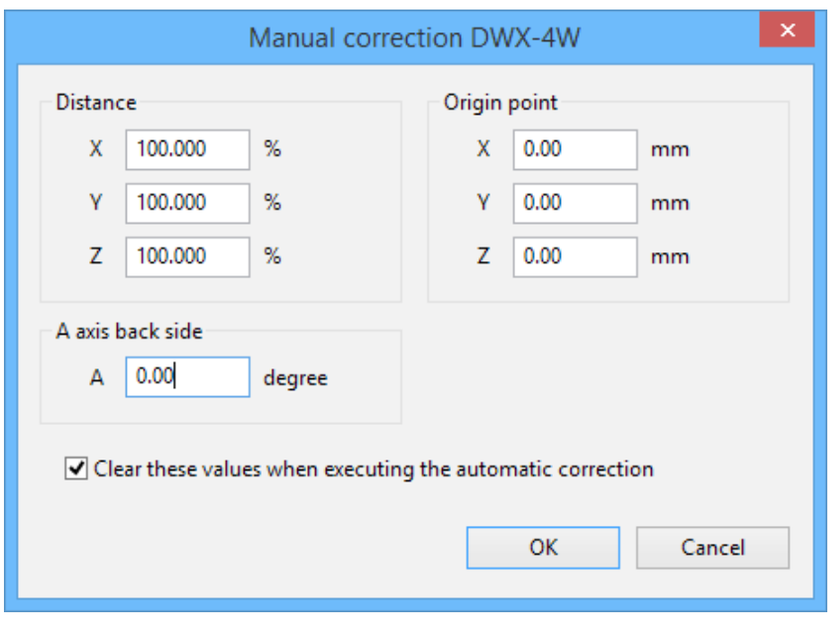
* It may be impossible to send e-mails because of security software settings or the like. If e-mails cannot be sent, check the settings of the security software being used as anti-virus software or for a similar purpose.
* For detailed information about the e-mail settings, consult your network administrator.
* VPanel does not support TLS connections (STARTTLS).

"Manual correction" Dialog Box

In this dialog box, you can directly enter the manual correction values of the milling machine. Perform correction to precisely adjust accuracy. When more than one machine is connected, the machine selected in the top window becomes the target for correction.

* Perform automatic correction before performing this correction.

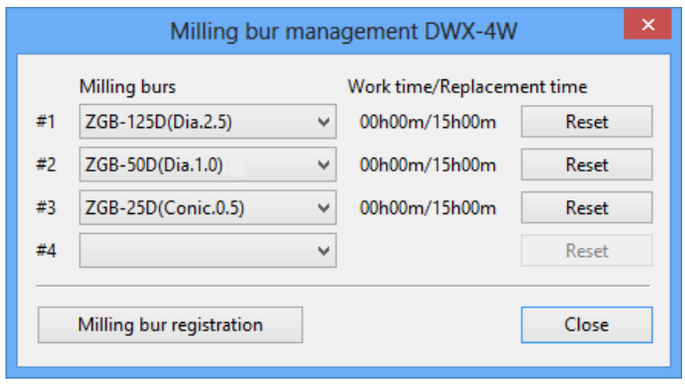
☞ P. 39 "Milling Machine Correction"



Distance	Correct moving distances in the X, Y, and Z directions. Set the correction value while considering the initial moving distance as 100%. ➢ Initial setting: 100%
A axis back side	Correct the angle when the A axis is rotated 180 degrees. Set the correction value while considering the initial setting as 0.00 degrees. ➢ Initial setting: 0.00 degrees
Origin point	Correct the origins of the X, Y, and Z axes. Set the correction value while considering the initial setting as 0.00 mm. ➢ Initial setting: 0.00 mm
Clear these values when executing the automatic correction	Check to reset the values for "Distance," "Origin point," and "A axis back side" when performing automatic correction. ➢ Initial setting: Checked

"Milling bur management" Dialog Box

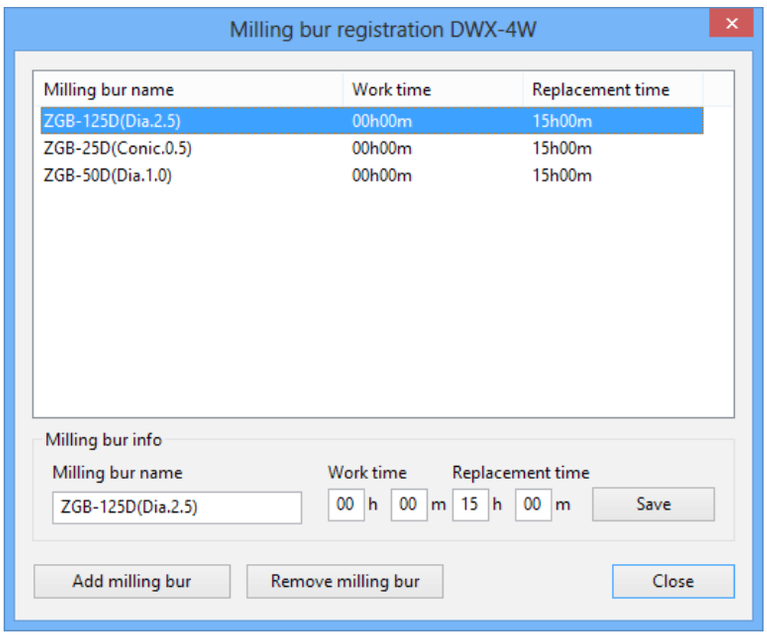
By selecting a milling bur to be used in this dialog box, the work time of the selected milling bur will be recorded automatically. In addition, when the bur reaches the preset replacement time, a warning message will be displayed. When more than one machine is connected, the machine selected in the top window is managed.



Milling burs	Here you can select from among the registered milling burs the bur whose work time you want to count. (#1 to #4 are stocker numbers.) Select a milling bur according to the milling burs set in the ATC magazine. The name and work time / replacement time of the selected milling bur will be displayed on the top window. When not using this function, leave the box blank.
Work time / Replacement time	Displays the work time and replacement time of the selected milling bur. The replacement time can be changed from "Milling bur registration." After replacing the milling bur with a new one, click [Reset] to set the work time to 0.
Milling bur registration	Here you can register milling burs whose work time you want to manage, or remove burs you no longer want to manage. Click here to open the "Milling bur registration" dialog box. ☞ P. 13 ""Milling bur registration" Dialog Box"

"Milling bur registration" Dialog Box

In this dialog box, you can register milling burs whose work time you want to manage, or remove burs you no longer want to manage. When more than one machine is connected, the milling burs for the machine selected in the top window are managed.



Milling bur list	Displays the name, work time, and replacement time of a registered milling bur.
Milling bur info	Allows the milling bur name, work time, and replacement time of the milling bur selected in the list to be edited. Click [Save] to overwrite and save the edited content. Because replacement times depend on the type of milling bur or workpiece as well as the milling conditions, adjust the replacement time value as necessary.
Add milling bur	Here you can register additional milling burs. You can register up to 20 milling burs.
Remove milling bur	Here you can remove the milling bur selected in the list.

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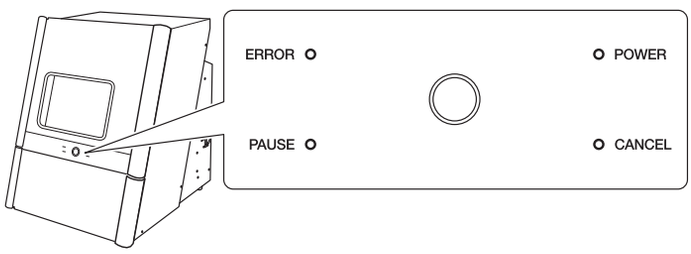
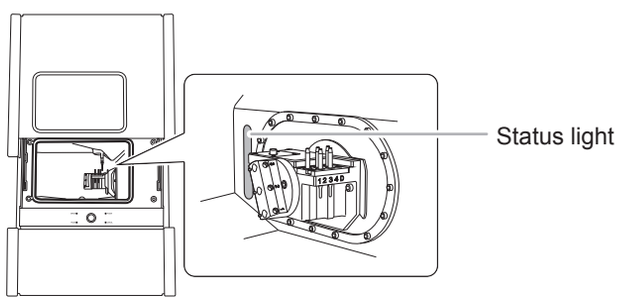


POWER	This lights up when the power is turned on.
PAUSE	Illuminates when operation is paused. Flashes when operation is ongoing (from the point when the operation button is pressed during milling to the point when operation is paused).
ERROR	Flashes when an error has occurred.
CANCEL	Flashes when data is being cancelled and during initialization. Milling data received while this light is flashing will be cancelled.
Operation button	Pressing this button during milling will pause or restart the machine. Pressing and holding this button during milling will abort milling or clear some errors. Pressing this button in standby will rotate the rotary axis position 180 degrees. The button will flash during initialization, spindle head or rotary axis operation, spindle rotation, and maintenance operation. The button will illuminate under any other status while the power is on.

Statuses Indicated by Status Light Color



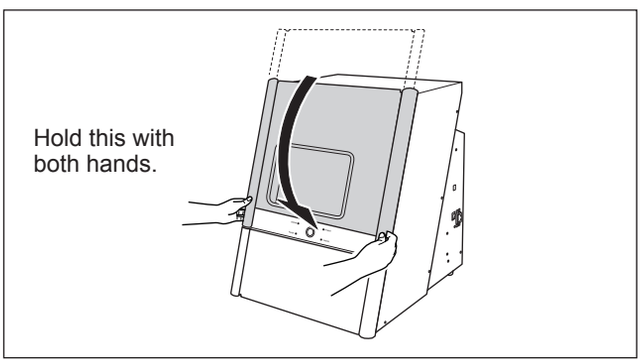
Blue	Initialization is in progress or the machine is in the standby status. (In the standby status, the color will change to white when the front cover is opened.) In the standby status, if no operation is initiated within 5 minutes, the machine will change to the sleep status, and the status light will turn off.
White	Milling is in operation or is paused. Also, in the standby status, white light will illuminate when the front cover is opened.
Yellow	When lit yellow, an error has occurred, and the machine has been paused. Check the error details shown on VPanel. Press the operation button on the built-in panel to resume milling.
Red	When lit or flashing red, an error has occurred and milling has been stopped. Milling cannot be resumed. Check the error details shown on VPanel. When illuminated, pressing and holding the operation button on the built-in panel will cancel milling and return the machine to the ready status. When flashing, turn off the power once and start up the machine again.
Off	The machine is sleeping or the power has been turned off and all lights are out.

Switching the Power On or Off

Switching the Power On

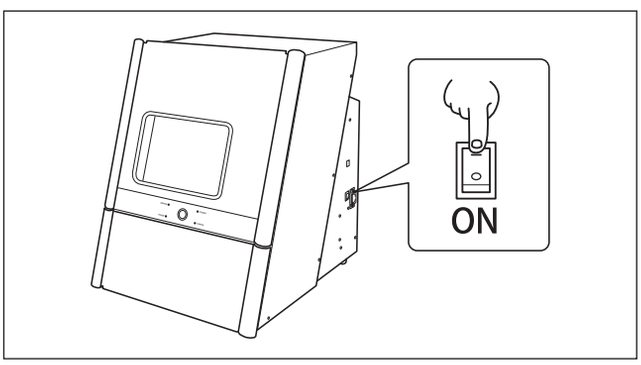
Procedure

❶



Close the front cover.

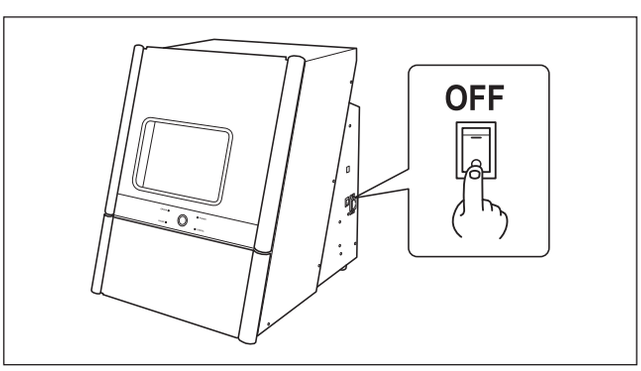
❷



Switch on the machine's power switch.
The machine starts initialization. When the status light stops flashing and remains steadily lit, initialization is complete.

Switching the Power Off

Procedure



Switch off the machine's power switch.

Preparing for Milling

Preparing a Workpiece (Usable Workpieces)

Workpiece Materials

- Glass ceramics
- Composite resins

Types and Sizes of Workpieces

- Type: Type with pin
- Maximum number of mountable workpieces: 3
- Maximum size of mountable workpieces: 40 (W) × 20 (D) × 20 (H) mm

* However, the workpiece size is limited by the number of workpieces mounted in the machine, and the number of mountable workpieces is limited by the size of the workpieces mounted in the machine.

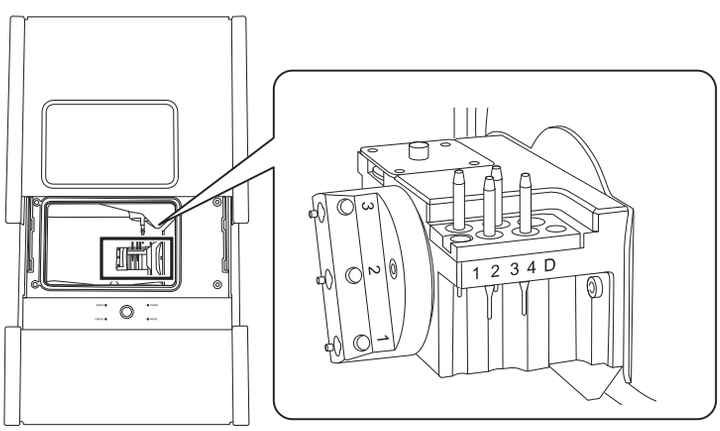
Preparing a Milling Bur

Usable Milling Burs

- Dedicated milling bur (3 types)

Setting Milling Burs in the ATC Magazine

Set the milling burs in stockers #1 to #4 of the ATC magazine. Set the different types of milling burs in the stocker numbers according to the milling data settings.
Ensure that the tips of the burs face down. Exercise caution regarding the orientation of the burs.



Preparing Compressed Air (Setting the Regulator)

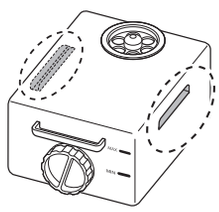
Recommended Set Pressure

- 0.6 MPa to 0.8 MPa

Filling the Coolant Tank/Replacing the Coolant

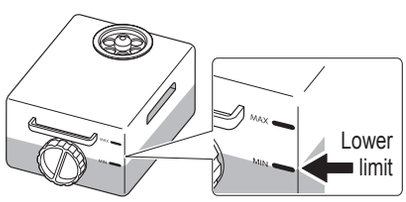
⚠CAUTION **Do not overfill or tilt the coolant tank.**
The fluid inlet on the coolant tank is open. Overfilling or tilting will cause fluid to spill out.

⚠CAUTION **When raising or lowering the coolant tank, hold the positions indicated in the following figure.**
Failing to do so may result in your fingers being pinched, leading to injury.

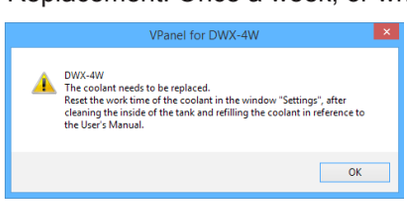


Situations Requiring This Work

➢ Filling: When first using the machine. / When the fluid level in the tank reaches the lower limit.



➢ Replacement: Once a week, or when the work time exceeds 15 hours.


VPanel for DWX-4W
DWX-4W
The coolant needs to be replaced.
Reset the work time of the coolant in the window "Settings", after cleaning the inside of the tank and refilling the coolant in reference to the User's Manual.
OK

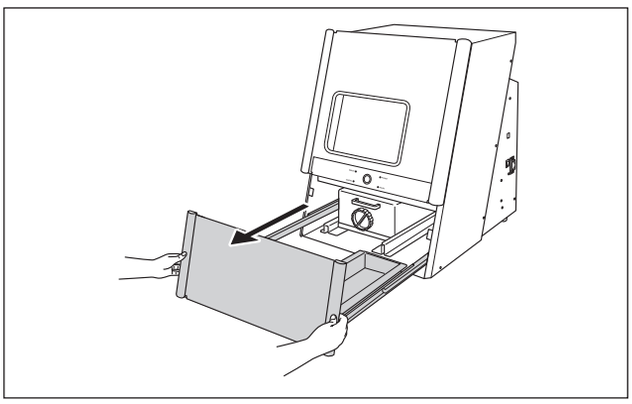
IMPORTANT!
When the work time exceeds 15 hours, the message shown above is displayed, prompting coolant replacement. Click [OK], and follow the procedure below to replace the coolant.
If the message appears during milling, click [OK], and replace the coolant as usual after milling completes.
If replacement will be performed before the work time exceeds 15 hours, follow the same procedure for replacing the coolant.

Water to Use

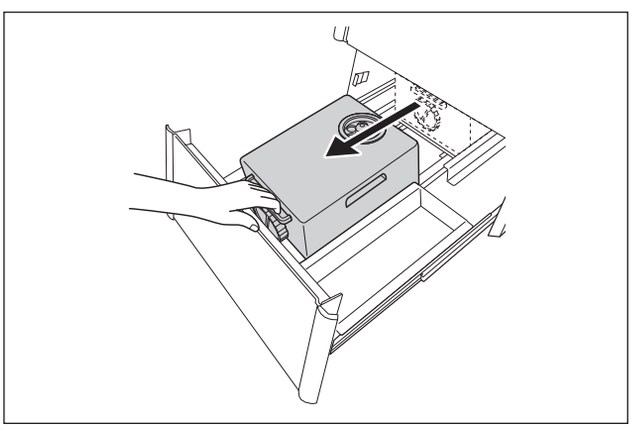
Use soft or purified water. Using hard water may have a negative effect on the service life of the milling bur and on the quality of the product.

Filling the Coolant Tank/Replacing the Coolant

1. Replace the coolant.

❶ 

Open the bottom cover.

❷ 

Pull out the coolant tank.

Important
Move the coolant tank slowly. Forcefully moving the coolant tank may cause the coolant to spray out.

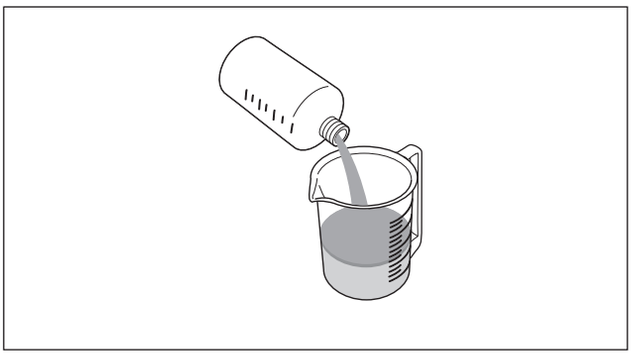
❸ Remove the coolant tank.

❹ Clean the inside of the coolant tank before you replace the coolant.
Pour a little tap water into the tank, and then shake the tank to the left and right. Dispose of any dirty water. Repeat this step until the water does not become dirty when you shake the tank.

Note

Dispose of coolant properly, in accordance with the laws in effect in your locale. Do not recklessly dispose of it in sewer systems, rivers, or streams. Doing so may have an adverse impact on the environment.

❺



Make the coolant.

The coolant should have a water-to-additive ratio of 95:5. Use the included measuring cup for measuring.

The capacity of the coolant tank is approximately 3 L. To fill the tank, use 2850 mL of water and 150 mL of additive.

After you combine the water and additive, there is no need to mix the substances together.

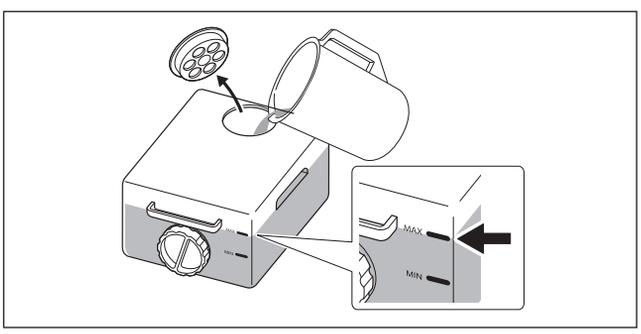
Refer to the appropriate safety data sheet (SDS) for the chemical substances used in the additives and the safety related to those substances.

Contact your authorized Roland DG Corporation dealer to purchase additives.

⚠CAUTION **Be sure to put the specified additive in the coolant tank.**

Additives are effective in reducing coolant deterioration and raising the milling efficiency in order to maintain product performance. Also, if additives are not used, the coolant may generate an unpleasant odor.

❻



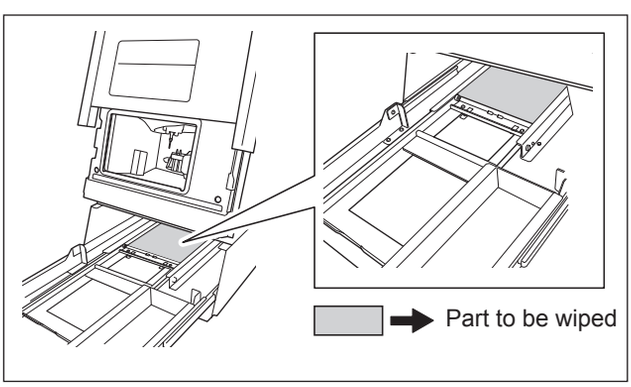
Remove the fluid inlet cap on the coolant tank, and pour in the coolant.

Do not add coolant past MAX.

After filling with coolant, close the fluid inlet cap.

2. Store the coolant tank.

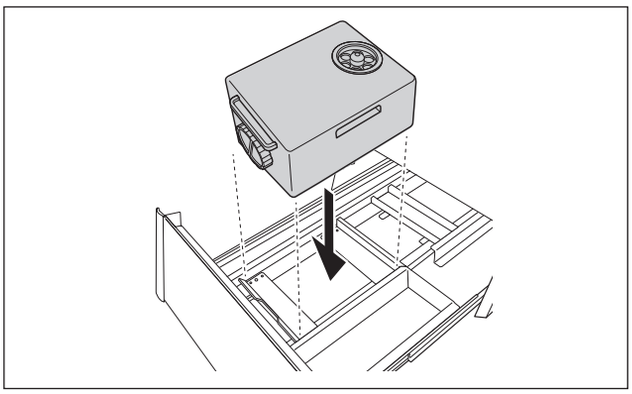
❶



Wipe the inside of the bottom cover.

Water accumulates in the bottom inside the bottom cover after using for long periods. Wipe regularly at the same timing as coolant replacement. Also, pull the rail forward when cleaning.

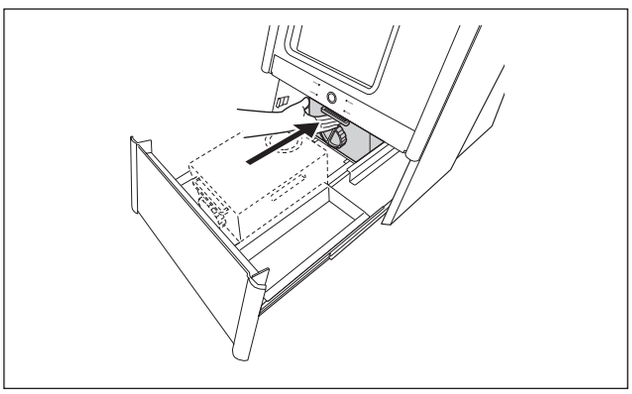
❷



Return the coolant tank to its original position.

Important
Move the coolant tank slowly. Forcefully moving the coolant tank may cause the coolant to spray out.

❸

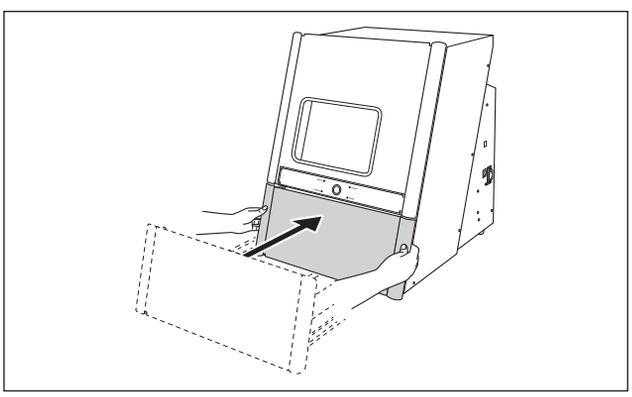


Push the coolant tank toward the back of the machine.

Push until you feel the tank click into place.

Important
Move the coolant tank slowly. Forcefully moving the coolant tank may cause the coolant to spray out.

❹



Close the bottom cover.

This completes the filling of the coolant tank or the replacing of the coolant.

3. Reset the coolant work time.

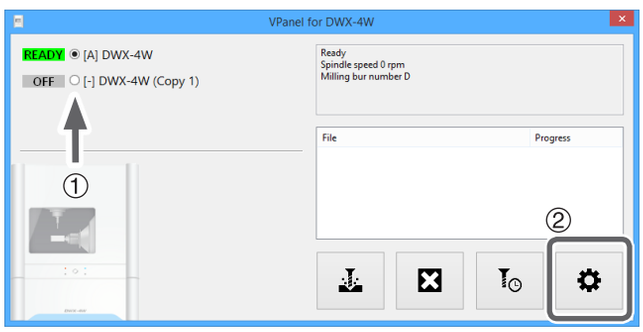
IMPORTANT!

After replacing the coolant, perform the following procedure.
If the work time is not reset, the message prompting coolant replacement will continue to be displayed.

❶ Show VPanel.

☞ P. 5 "Displaying VPanel"

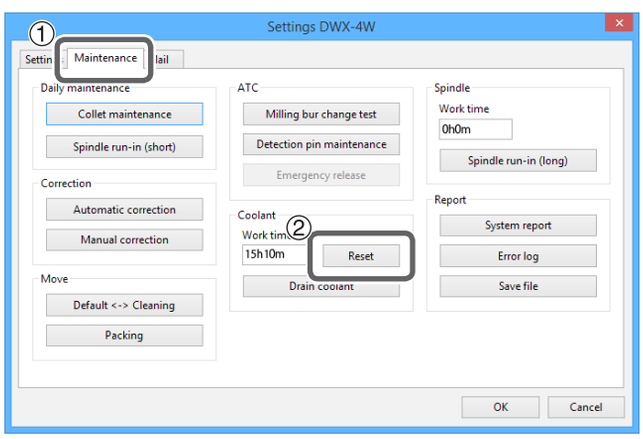
❷



① Select a machine to operate.
Click the radio button to the left of the name of the machine to operate.

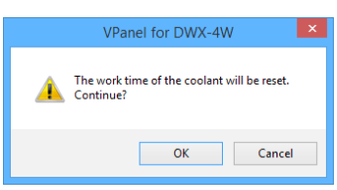
② Click ⚙ in the top window.
The [Settings] screen will appear.

❸



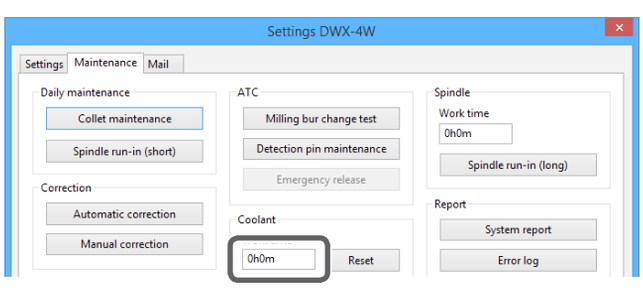
① Click the [Maintenance] tab.
② Click [Reset].

❹



Click [OK].

❺



The coolant work time display will become "0."
The replacement operation is now complete.

Starting Milling

Milling Precautions

Do not turn the power off during the following operations or stop work before the operation is complete.

- Collet maintenance (P. 28)
- Milling (P. 25)
- When the machine is operating after you click the [Emergency release] button (P. 9)

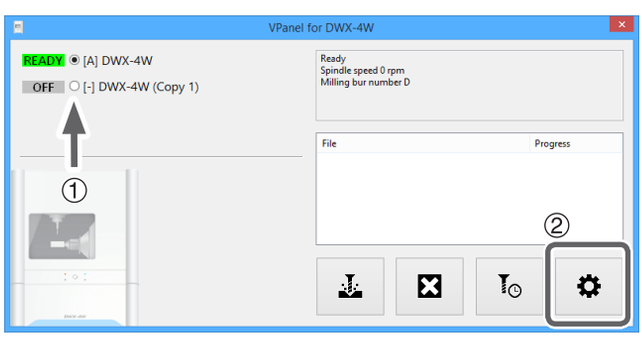
If you turn the power off during these operations or stop work before the operation is complete, the spindle unit may be in a state where it does not hold anything (the milling bur and detection pin may also be in states where they do not hold anything). Note that the machine may malfunction in this state.

STEP 0: Spindle Run-In (Short)

Be sure to perform the following tasks before daily operations. These tasks are necessary for maintaining a favorable machine condition and for ensuring a high level of product quality. If these tasks are not executed, a message prompting operation will be displayed in VPanel.

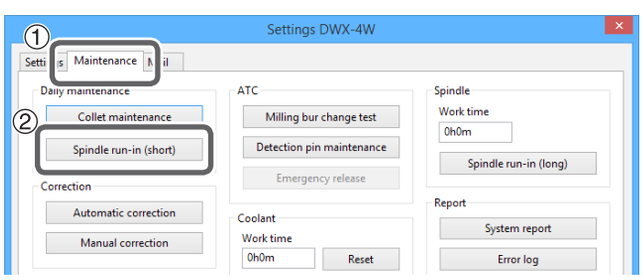
Procedure

1. Show VPanel.
   ☞ P. 5 "Displaying VPanel"

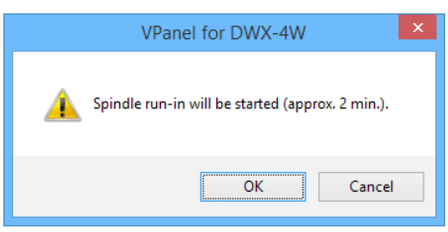
2. 

   ① Select a machine to operate.
   Click the radio button to the left of the name of the machine to operate.

   ② Click ⚙ in the top window.
   The [Settings] screen will appear.

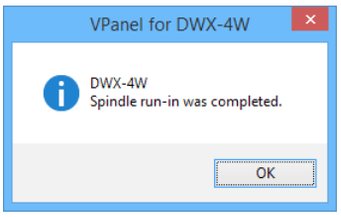
3. 

   ① Click the [Maintenance] tab.
   ② Click [Spindle run-in (short)].

4. 

   Click [OK].
   Spindle run-in will begin.
   The machine status light will flash blue. The remaining work time will be displayed on VPanel.

❺



When the message shown in the figure appears, the spindle run-in (short) is complete.
Click [OK].

⚠CAUTION **Do not insert your hands or other objects into the machine or look into the inside of the machine with the front cover open until the spindle has come to a complete stop.**
If you open the front cover before the spindle comes to a complete stop, an emergency stop will occur. Due to inertia, the spindle will continue to rotate even after an emergency stop has occurred. It is dangerous to touch a rotating tool. Also, the coolant continues to flow until the spindle comes to a complete stop. Coming into contact with sprayed coolant may be hazardous to your health.

STEP 1: Mounting the Workpiece

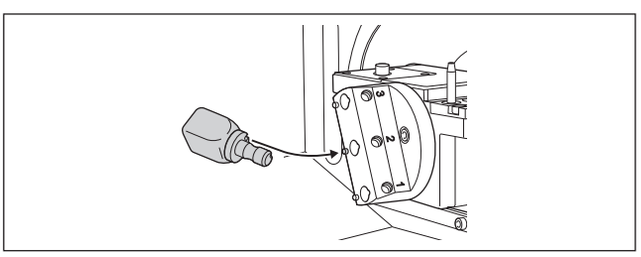
Procedure

❶ Check that the P. 23 "STEP 0: Spindle Run-In (Short)" procedure is complete.

❷ If the power is off, close the front cover and turn on the power.
☞ P. 16 "Switching the Power On"

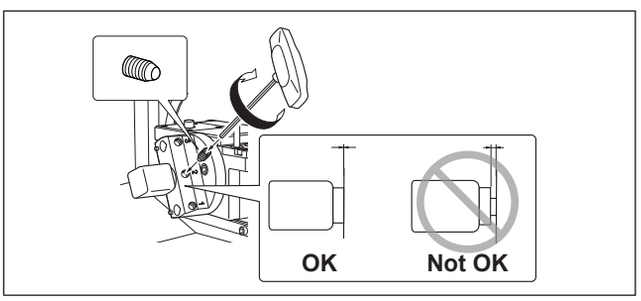
❸ Once initialization completes, open the front cover.

❹



Insert the pin portion of the workpiece into the hole on the rotary axis.
Align the notch on the base of the workpiece pin with the protrusion on the rotary axis.

❺



Use a mounting screw to secure the workpiece in place.
Tighten with a hexagonal screwdriver.

❻ Close the front cover.

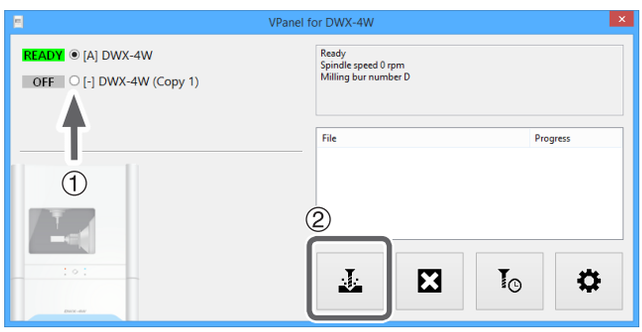
STEP 2: Outputting Milling Data

* You can also use commercial CAM software to output milling data. For information on compatible CAM software, contact your authorized Roland DG Corporation dealer.

⚠CAUTION **Do not place any electronic devices in the vicinity of this machine.**
Because coolant flows within this machine, water may be sprayed on objects in the vicinity of the machine when its front cover is opened. To prevent malfunctions, do not place any electronic devices in the vicinity of this machine.

Procedure

1

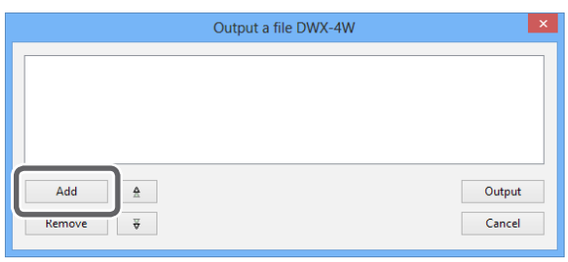


① In the top window of VPanel, select the machine to output to.

② Click .

The [Output a file] window will appear.

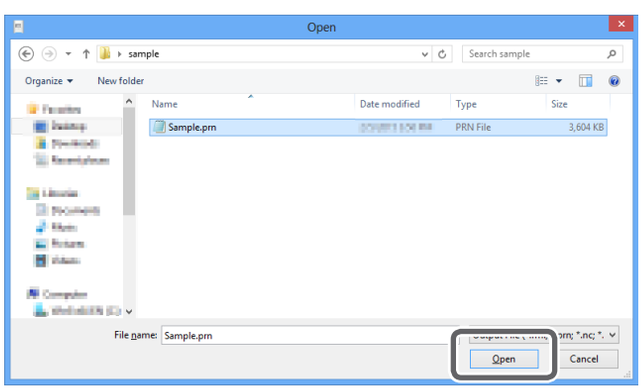
2



Click [Add].

The [Open] window will appear.

3



Select the milling data, and click [Open].

The selected milling data is displayed in the data list of the [Output a file] window.

Repeat steps **2** **3** to output the milling data continuously.

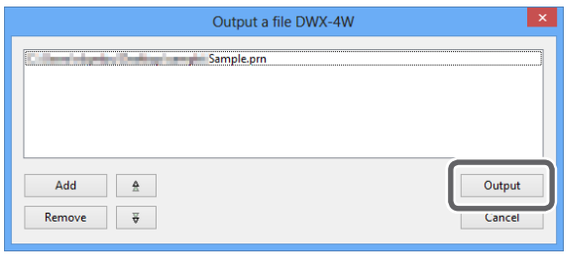
4 Verify that the milling bur has been set.

☞ P. 17 "Preparing a Milling Bur"

5 Check that the coolant has been set.

☞ P. 18 "Filling the Coolant Tank/Replacing the Coolant"

❻



Click [Output].

Tips!

Changing the data list order

You can change the output order by selecting the milling data in the data list and clicking ▲ or ▼.
(The milling data is output from the top of the data list.)

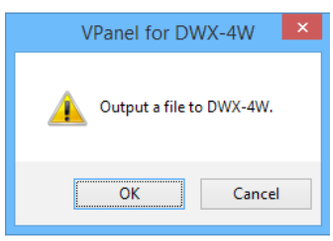
Removing milling data in the data list

You can remove milling data in the data list by selecting the milling data and clicking "Remove."

Adding milling data by dragging and dropping

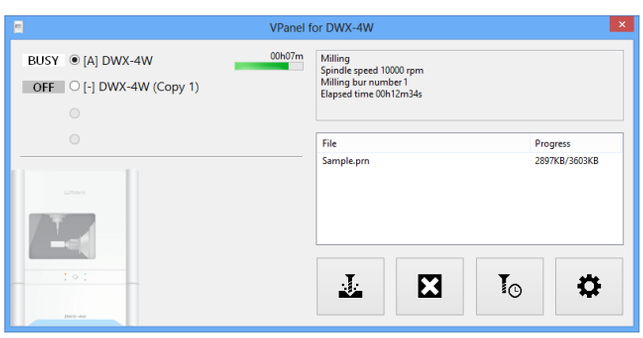
You can add milling data by dragging and dropping data on the window displayed in steps ❶ and ❷.

❼



Verify that a workpiece and milling bur have been mounted on the milling machine, and click [OK].

☞ P. 24 "STEP 1: Mounting the Workpiece"



The output milling data is displayed in the output list of the top window, and milling starts.
The estimated milling time and a progress bar are displayed next to the machine name.

❽ When milling is finished, a completion buzzer will sound.
Check that the spindle has come to a complete stop, and then open the front cover.

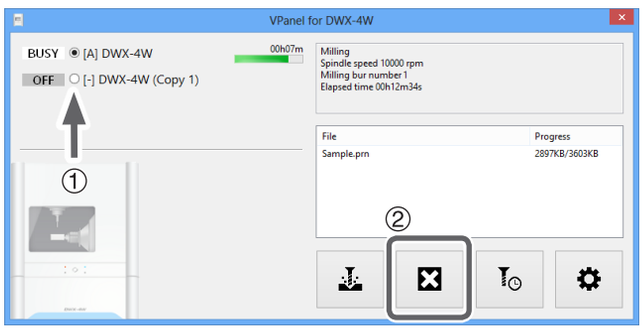
⚠CAUTION **Do not insert your hands or other objects into the machine or look into the inside of the machine with the front cover open until the spindle has come to a complete stop.**
If you open the front cover before the spindle comes to a complete stop, an emergency stop will occur. Due to inertia, the spindle will continue to rotate even after an emergency stop has occurred. It is dangerous to touch a rotating tool. Also, the coolant continues to flow until the spindle comes to a complete stop. Coming into contact with sprayed coolant may be hazardous to your health.

⚠CAUTION **After milling, thoroughly wash the products with purified water or a similar substance.**
After milling, there will be coolant on the product. Using the product as is may cause an inflammation or the like.

Continue on to P. 28 "Following Daily Operations".

Aborting Output

Procedure

1 

① In the top window of VPanel, select the machine for which output will be aborted.

② Click ⊠.

2

The message shown in the figure will be displayed.
To abort output, click [OK].
Click [Cancel] to not abort the output.

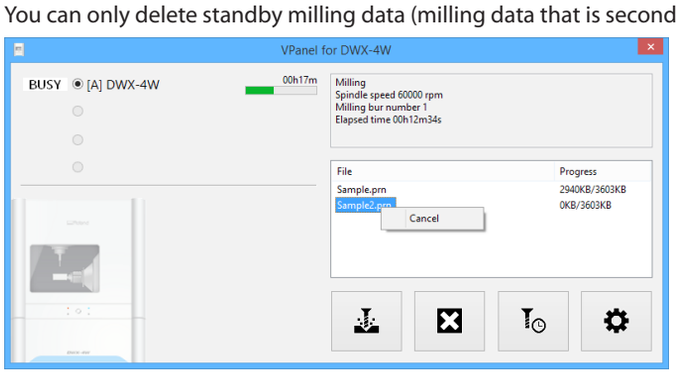
⚠CAUTION **Do not insert your hands or other objects into the machine or look into the inside of the machine with the front cover open until the spindle has come to a complete stop.** If you open the front cover before the spindle comes to a complete stop, an emergency stop will occur. Due to inertia, the spindle will continue to rotate even after an emergency stop has occurred. It is dangerous to touch a rotating tool. Also, the coolant continues to flow until the spindle comes to a complete stop. Coming into contact with sprayed coolant may be hazardous to your health.

Deleting Standby Milling Data

Procedure

1 In the top window of VPanel, select the machine that has the milling data that you want to delete.

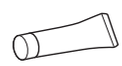
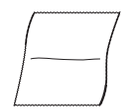
2 In the output list, right-click the milling data that you want to delete, and then click [Cancel].
You can only delete standby milling data (milling data that is second from the top or lower in the output list).



Collet Maintenance

Be sure to perform the following tasks after daily operations. These tasks are necessary for maintaining a favorable machine condition and for ensuring a high level of product quality.
If these tasks are not executed, a message prompting operation will be displayed in VPanel.

Required Tools

Included items					Commercially available item
					
Collet replacement jig	Collet tap	Taper cleaner	Collet brush	Grease	Dry cloth

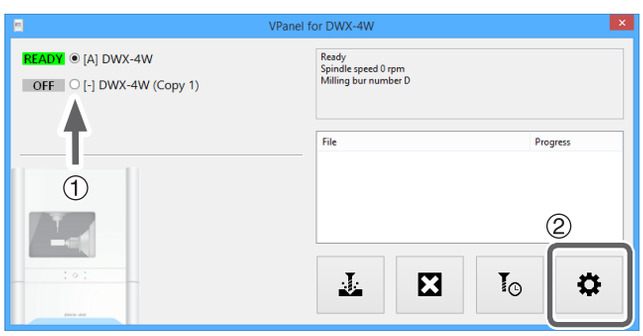
Note
Collet maintenance should be completed quickly. This is because a sufficient amount of compressed air must be supplied while performing the work, and if the work is not completed promptly, the compressed air supply will be insufficient. If the compressed air can no longer be supplied, an error will occur, which will result in the need to start the operation over from the beginning.

1. Remove the collet.

❶ Show VPanel.

☞ P. 5 "Displaying VPanel"

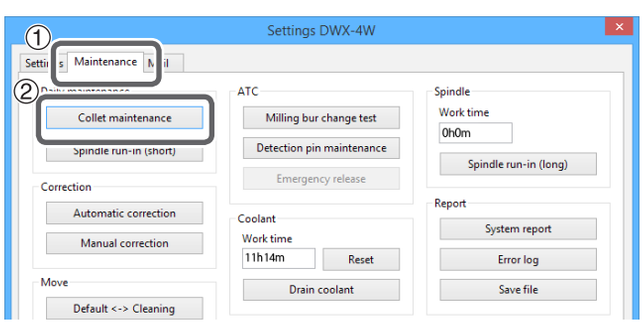
❷



① Select a machine to operate.
Click the radio button to the left of the name of the machine to operate.

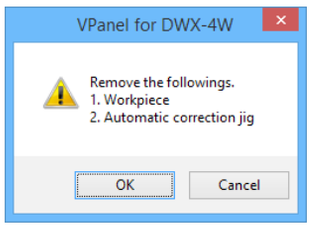
② Click ⚙ in the top window.
The [Settings] screen will appear.

❸



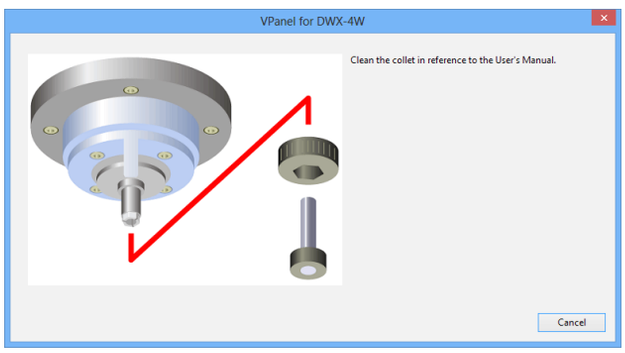
① Click the [Maintenance] tab.
② Click [Collet maintenance].

4



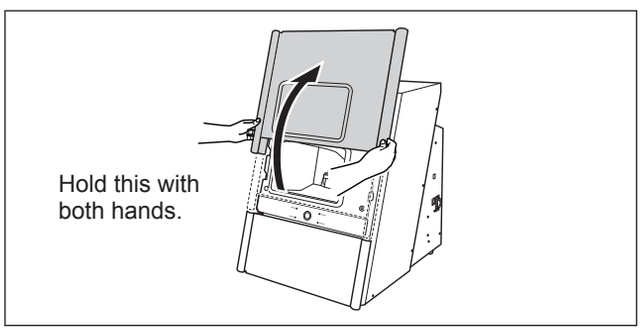
If a workpiece or the automatic correction jig is attached:
Remove the workpiece or the automatic correction jig, close the front cover, and then click [OK].

If no workpiece or automatic correction jig is attached:
Click [OK].



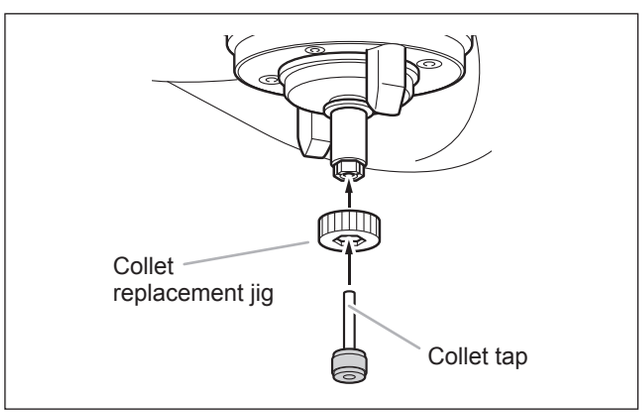
The window shown in the figure appears automatically.

5



Open the front cover.

6



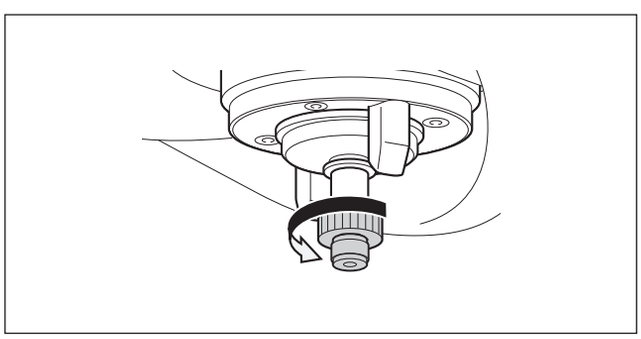
Press the collet replacement jig against the collet, and then insert the collet tap.

Align the hexagonal tip of the collet and the hexagonal portion of the collet replacement jig.

Important

Rotate the collet replacement jig while the collet tap is inserted. If the collet replacement jig is rotated without the collet tap inserted, the collet may be damaged.

7



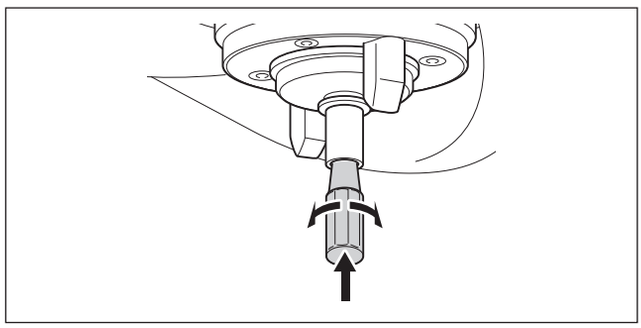
While gently pressing the collet tap up into the hole, rotate the collet replacement jig in the direction indicated in the figure.

Rotate the collet replacement jig until the collet naturally comes free.

Due to the pressure of the compressed air, the collet may be forcefully pushed out when it comes free. Gently support the collet with your hand so that the collet does not fall out.

2. Clean the inside of the spindle and the collet.

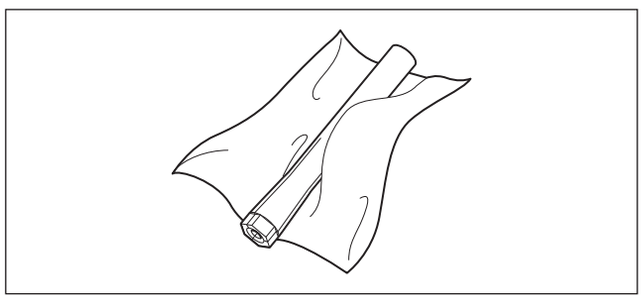
❶



Clean the inside of the spindle (where contact with the collet is made) with the taper cleaner.

Rotate the taper cleaner left and right as if you are brushing the inner portion of the spindle.

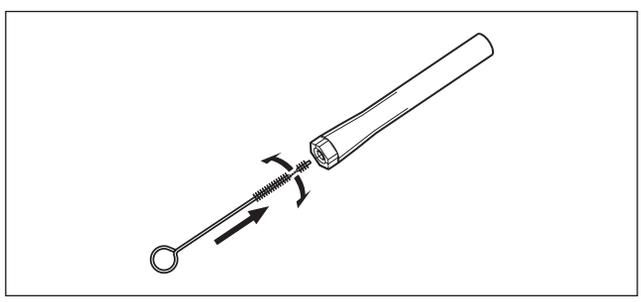
❷



Wipe the outer portion of the collet with a clean, dry cloth.

Do not hold the tapered portion tightly. This part being deformed may result in malfunctions.

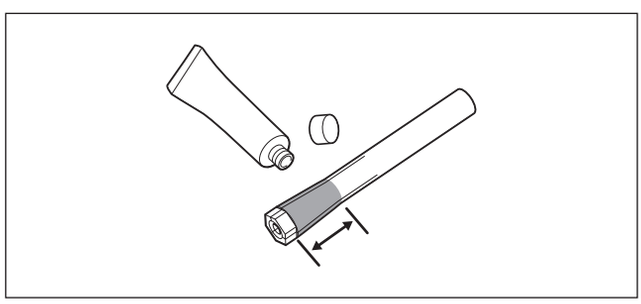
❸



Clean the inner portion of the collet with the collet brush.

Rotate the collet brush left and right as if you are brushing the inner portion of the collet.

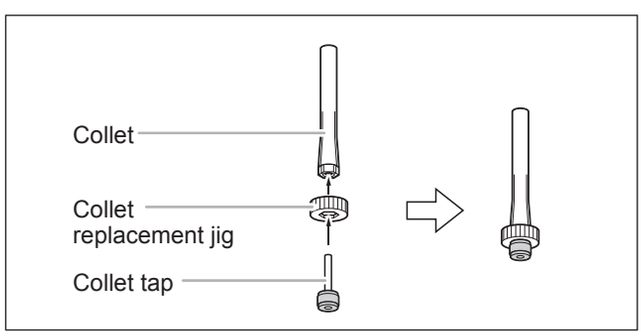
❹



Lightly apply grease to the tapered portion on the outside of the collet.

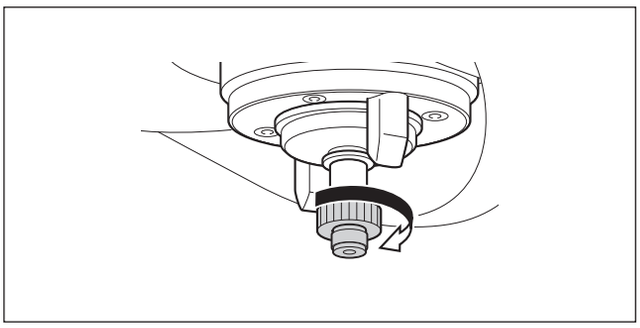
A thin application is sufficient. Do not apply excessively.

❺



Assemble the collet, collet replacement jig, and collet tap as shown in the figure, and then insert this assembly into the spindle.

❻

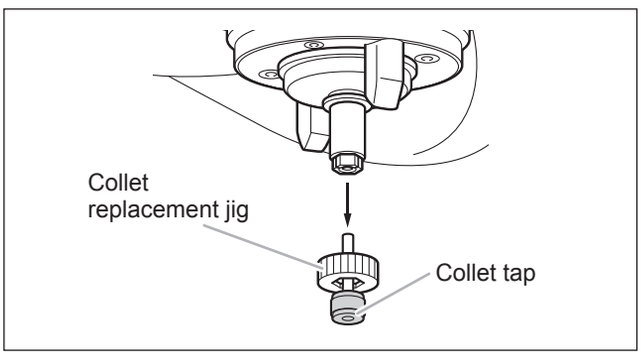


While gently pressing the collet tap up into the hole, rotate the collet replacement jig in the direction indicated in the figure to tighten the collet.

Keep rotating until the collet replacement jig will not rotate any more.

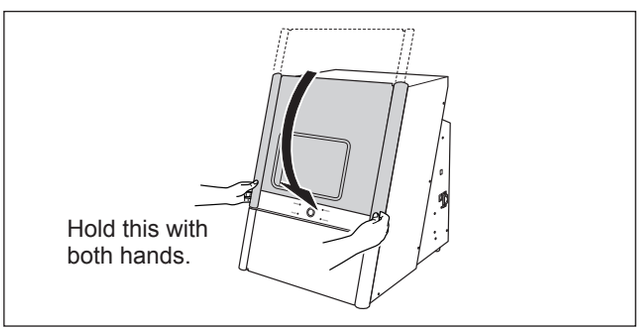
The collet will be subjected to compressed air. Be careful to prevent the collet from falling out.

❼



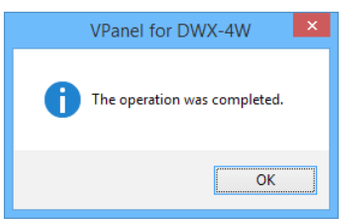
Attach the collet replacement jig and the collet tap.

❽



Close the front cover.

❾



When the message shown in the figure appears, the collet maintenance is complete.

Click [OK].

3. Maintenance

Maintenance Precautions 33

Maintenance Precautions 33

Daily Care 34

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Care of the Dummy Pin for Milling 36

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Maintenance Precautions

Maintenance Precautions

⚠WARNING **Never use a pneumatic blower.**
This machine is not compatible with a pneumatic blower. Milling waste may get inside the machine and cause fire or electrical shock.

⚠WARNING **Never use a solvent such as gasoline, alcohol, or thinner to perform cleaning.**
Doing so may cause a fire.

⚠WARNING **Caution: High temperatures.**
The milling tool and spindle motor become hot. Exercise caution to avoid fire or burns.

⚠CAUTION **Be careful around the milling tool.**
The milling tool is sharp. Broken milling tools are also dangerous. To avoid injury, exercise caution.

⚠CAUTION **Use a dry cloth when cleaning silicone resin parts, and be careful to prevent the silicone resin from being damaged.**
The silicone resin being damaged may lead to electric leakage.

- This machine is a precision device. Carry out daily care and maintenance.
- Carefully wipe away any fluid or milling waste. Operating the machine with fluid or milling waste present may cause malfunction or breakdown.
- Never install in an environment where silicone substances (oil, grease, spray, etc.) are present. Doing so may cause poor switch contact.

Do not turn the power off during the following operations or stop work before the operation is complete.

- Automatic correction (P. 39)
- Milling bur change test (P. 45)
- Detection pin maintenance (P. 36)
- When the machine is operating after you click the [Emergency release] button (P. 9)

If you turn the power off during these operations or stop work before the operation is complete, the spindle unit may be in a state where it does not hold anything (the milling bur and detection pin may also be in states where they do not hold anything). Note that the machine may malfunction in this state.

Cleaning after Milling Finishes

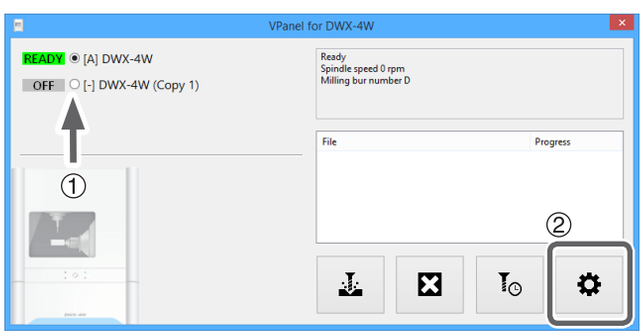
After milling finishes, clean inside the machine with a dry cloth. Carefully wipe around the spindle head and the rotary axis parts shown in the following figure as fluid and milling waste in these areas may affect milling results.

⚠CAUTION **Use a dry cloth to clean the inside of the equipment.**
Failure to do so may cause the components inside the equipment to degrade, which can lead to injury.

⚠CAUTION **Be careful of the pointed portion inside the front cover.**
There is a pointed portion inside the front cover. Exercise caution when cleaning.

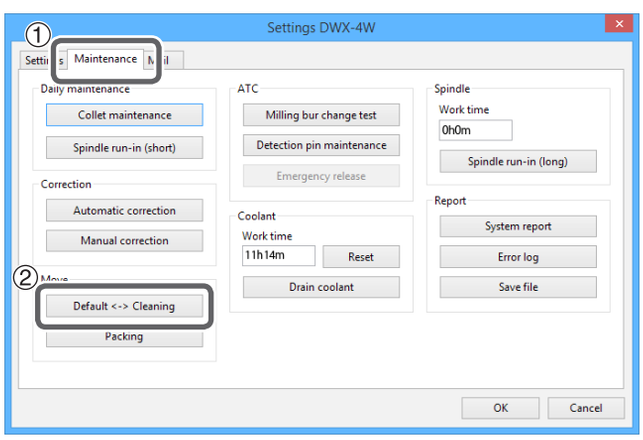
Procedure

1. Show VPanel.
☞ P. 5 "Displaying VPanel"

2. 

① Select a machine to operate.
Click the radio button to the left of the name of the machine to operate.

② Click ⚙ in the top window.
The [Settings] screen will appear.

3. 

① Click the [Maintenance] tab.
② Click [Default <-> Cleaning].

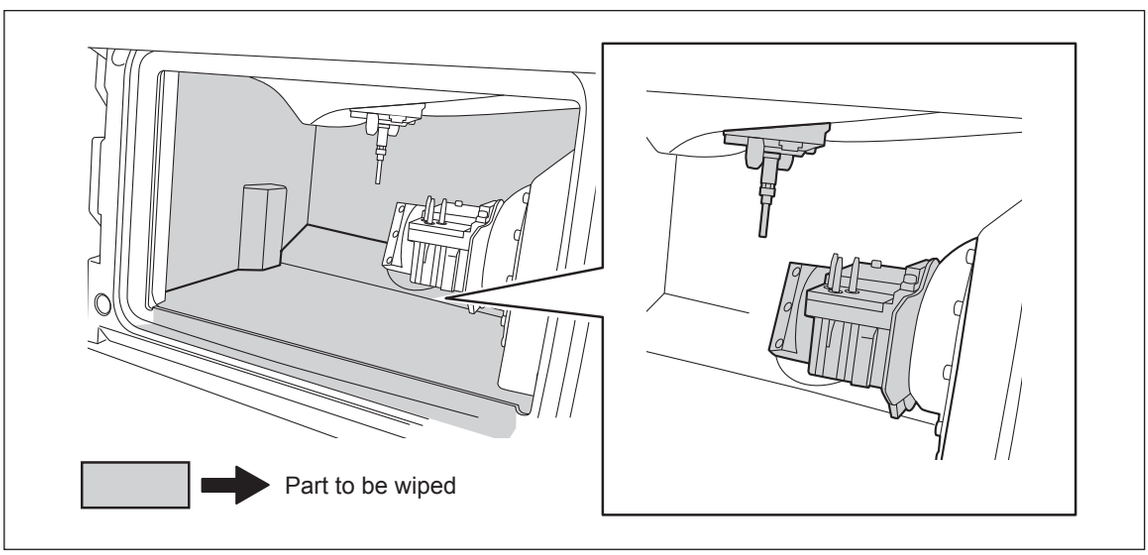
❹ Clean the milling bur and the inside of the machine.

In particular, carefully clean the portions shown in the following figures. Click [Default <-> Cleaning] as necessary for each cleaning location. Clicking this will cause the spindle head to move.

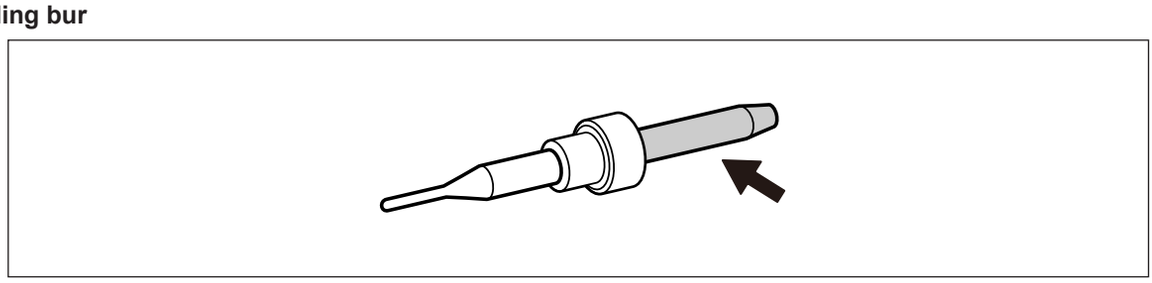
Important

When clicking [Default <-> Cleaning], it's necessary to close the front cover beforehand.

Inside the machine



Milling bur



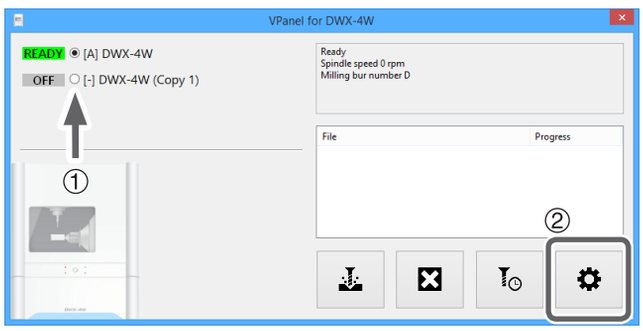
Care of the Dummy Pin for Milling

Procedure

❶ Show VPanel.

☞ P. 5 "Displaying VPanel"

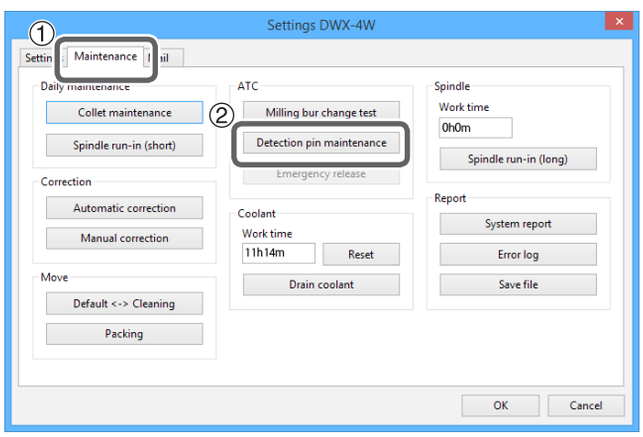
❷



① Select a machine to operate.
Click the radio button to the left of the name of the machine to operate.

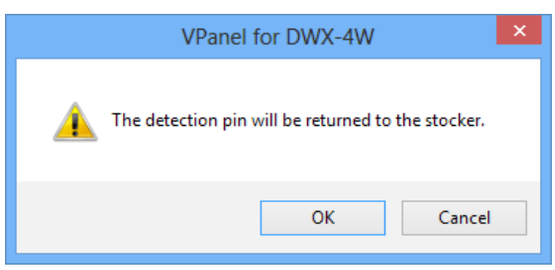
② Click ⚙ in the top window.
The [Settings] screen will appear.

❸



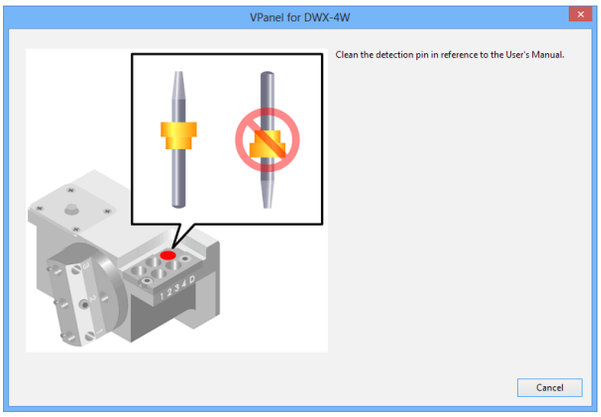
① Click the [Maintenance] tab.
② Click [Detection pin maintenance].

❹



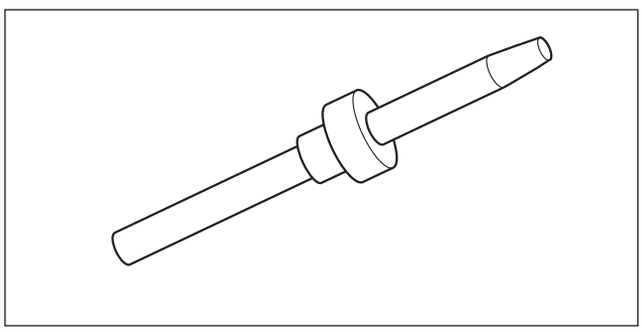
Click [OK].

❺



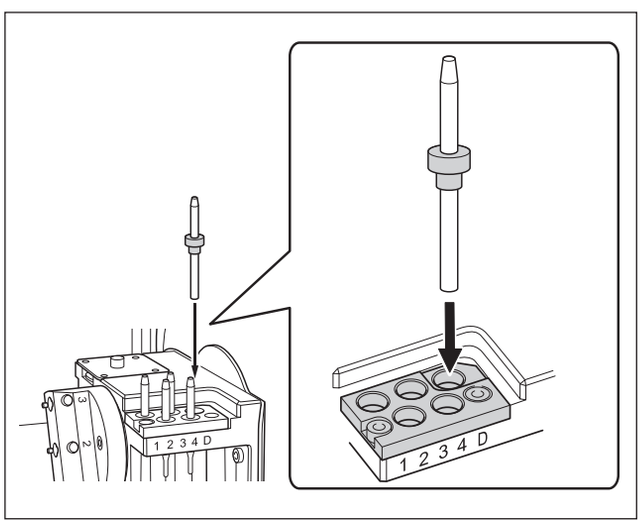
The window shown in the figure appears automatically.
Open the front cover and remove the dummy pin for milling.

❻



Wipe the dummy pin for milling with a dry cloth.
Any fluid or milling waste not wiped off will have an effect on the milling results. Carefully wipe the entire area clean.

❼

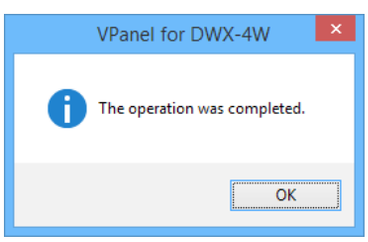


Return the dummy pin for milling to the ATC magazine's "D" stocker.

> The detection pin should be oriented with the tapered end up. Be careful not to confuse which side is up and which is down.

❽ Close the front cover.

❾



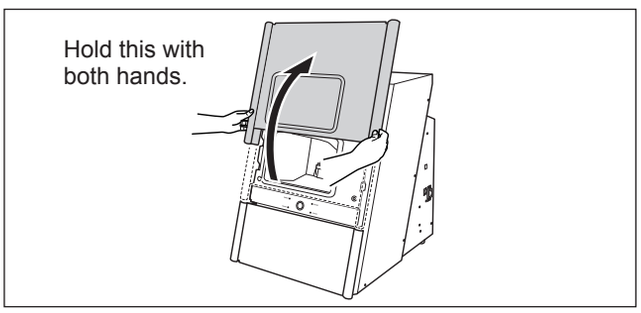
The operation is complete once the message in the figure is displayed.
Click [OK].

Cleaning the Waterproof Plate

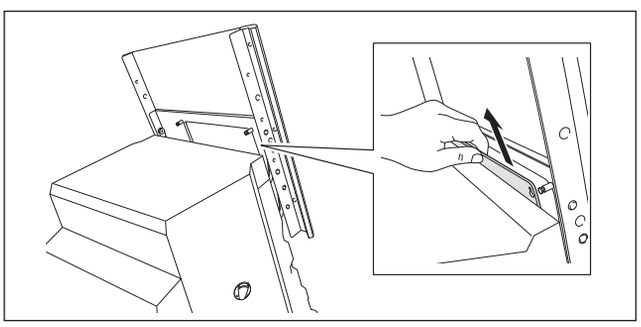
Through use, the waterproof plate attached on the inside of the front cover will become dirty and visibility from the outside will drop. By cleaning the waterproof plate regularly, visibility can be maintained, making it easy to check the status of operations.

⚠CAUTION **Never use a solvent such as gasoline, alcohol, or thinner to perform cleaning.** Doing so may cause a fire.

Procedure

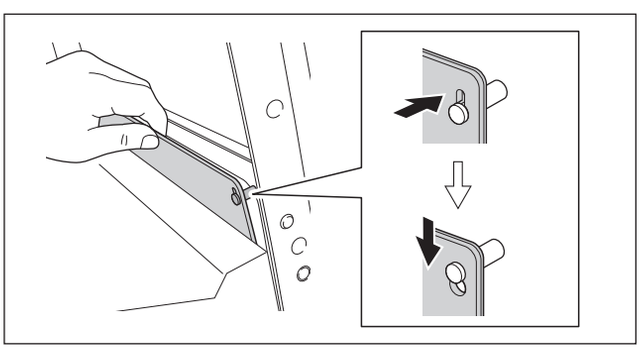
❶ 

Make sure the power is off, and open the front cover.

❷ 

Remove the waterproof plate from the inside of the front cover.
Slide the waterproof plate up, and remove it from the protrusions on the front cover in 2 locations.

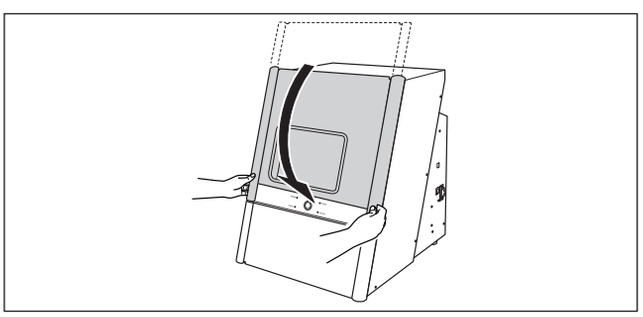
❸ Wash the waterproof plate with water.
After washing, wipe off any moister on the plate.

❹ 

Attach the waterproof plate on the inside of the front cover.
Make sure that the protrusions on the front cover are seated firmly in the 2 locations on the plate.

IMPORTANT!

The waterproof plate has a top, bottom, front, and back side. Be careful of the orientation when installing. If the orientation is not correct, the plate may interfere with opening and closing the front cover.

❺ 

Close the front cover.

Milling Machine Correction

The accuracy of the milling machine may vary if it is used for a long period of time or the surrounding environment changes. Performing automatic correction will correct the rotary axis position.

Situations Requiring This Work

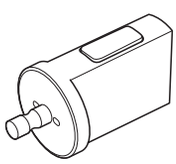
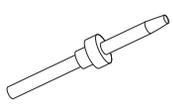
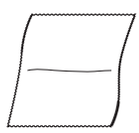
- When replacing the spindle unit
- When the milling position is misaligned
- When symptoms such as a line of level difference or a hole in the Z direction occurs in the milling results

This procedure must be performed by a trained service technician in the following cases.

- When installing the machine in a different location

  This work is required not only when installing the machine but also when moving the machine to a different location. Contact your authorized Roland DG Corporation dealer to perform such work.

Required Tools

Included items		Commercially available item
 Automatic correction jig	 Detection pin for correction	 Dry cloth

IMPORTANT!

Make sure to keep the dummy pin for milling and the detection pin for correction separate and to never mistake which is for milling and which is for correction.

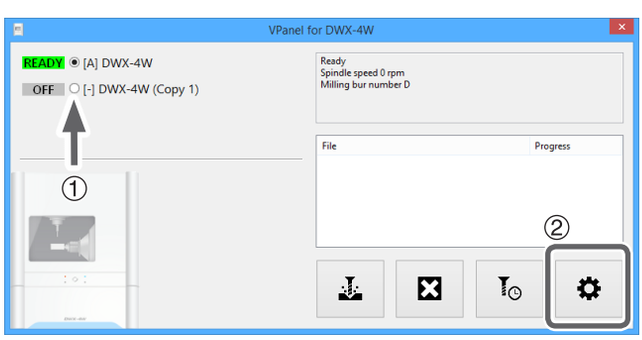
If a detection pin is used for milling even once, it cannot be used to provide proper correction. If for some reason a detection pin for correction is used for milling, a new detection pin for correction will be necessary. In such cases, contact your authorized Roland DG Corporation dealer.

1. Replace the dummy pin for milling with the detection pin for correction.

❶ Show VPanel.

☞ P. 5 "Displaying VPanel"

❷



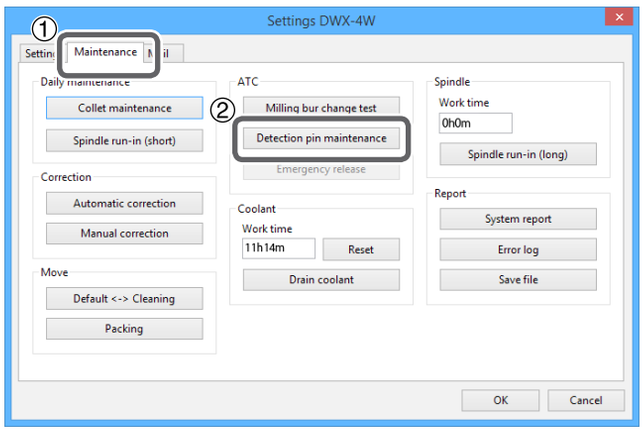
① Select a machine to operate.

Click the radio button to the left of the name of the machine to operate.

② Click ⚙ in the top window.

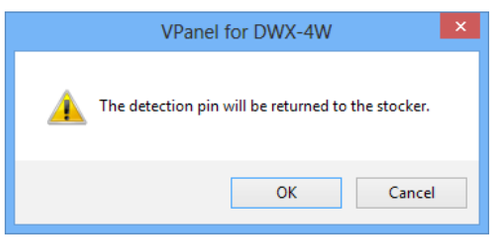
The [Settings] screen will appear.

❸



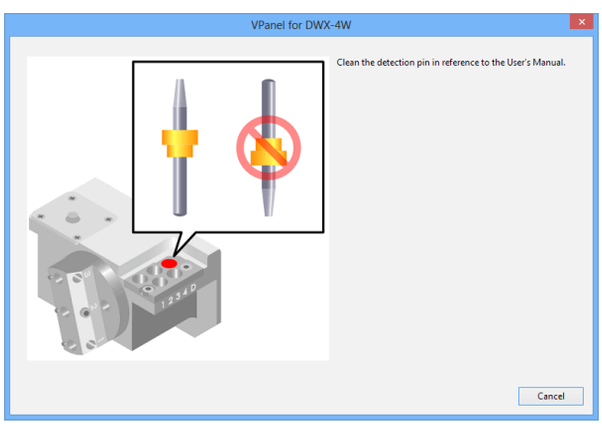
① Click the [Maintenance] tab.
② Click [Detection pin maintenance].

❹



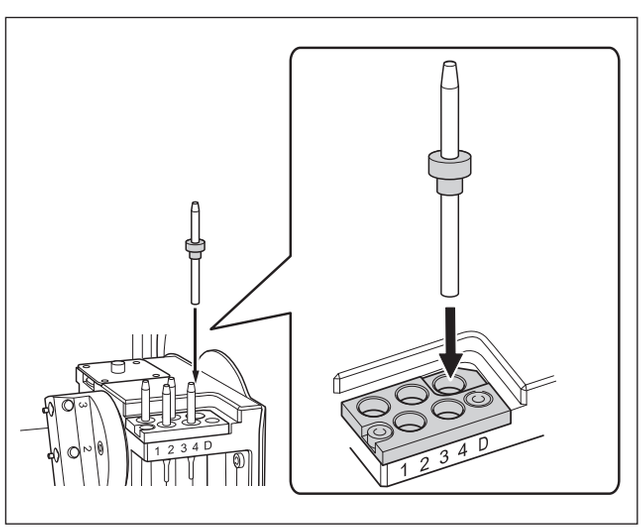
Click [OK].

❺



The window shown in the figure appears automatically.
Open the front cover and remove the dummy pin for milling.

❻

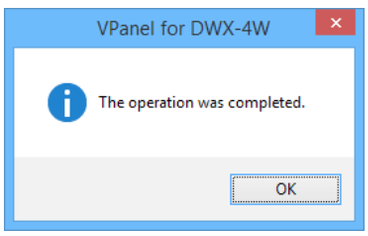


Return the detection pin for correction to the ATC magazine's "D" stocker and install the dummy pin for milling in its place.

> The detection pin should be oriented with the tapered end up. Be careful not to confuse which side is up and which is down.

❼ Close the front cover.

❽

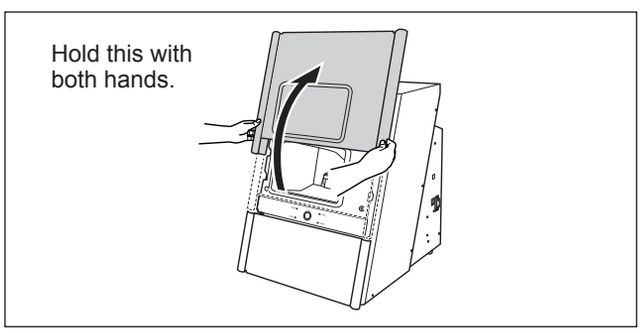


If the message shown in the following figure appears, click [OK].

❾ Wipe the removed dummy pin for milling with a dry cloth.
Any fluid or milling waste not wiped off will have an effect on the milling results. Carefully wipe the entire area clean.

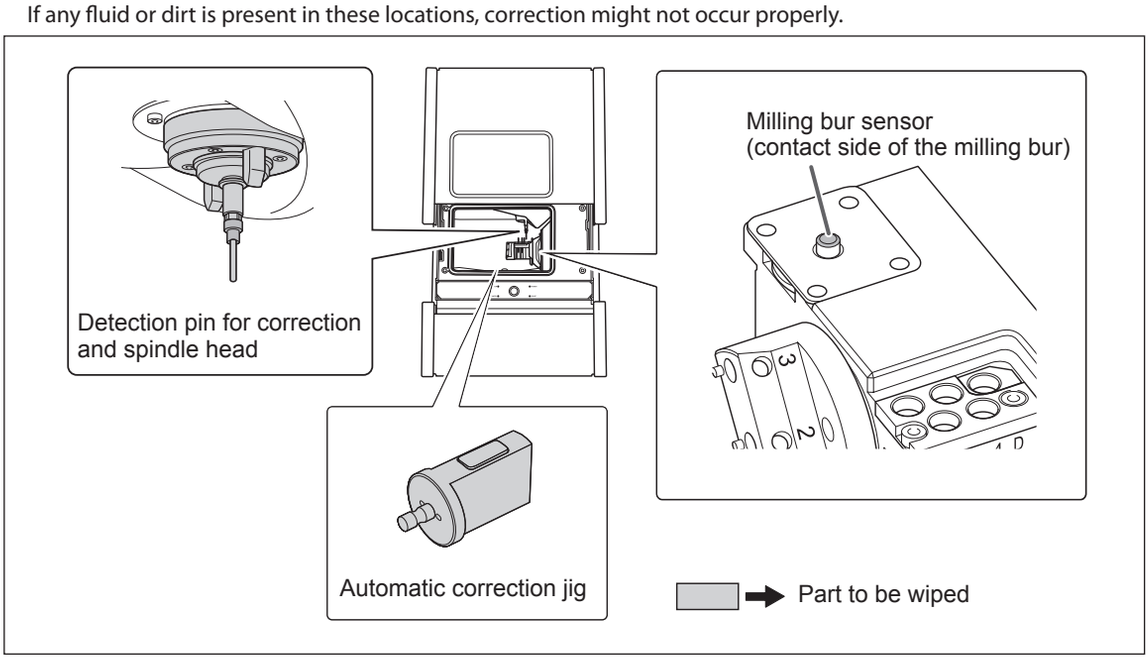
2. Perform automatic correction of the milling machine.

❶



Open the front cover.

❷ Use a dry cloth to cleanly wipe away any fluid or dirt in the locations shown in the following figure.
If any fluid or dirt is present in these locations, correction might not occur properly.

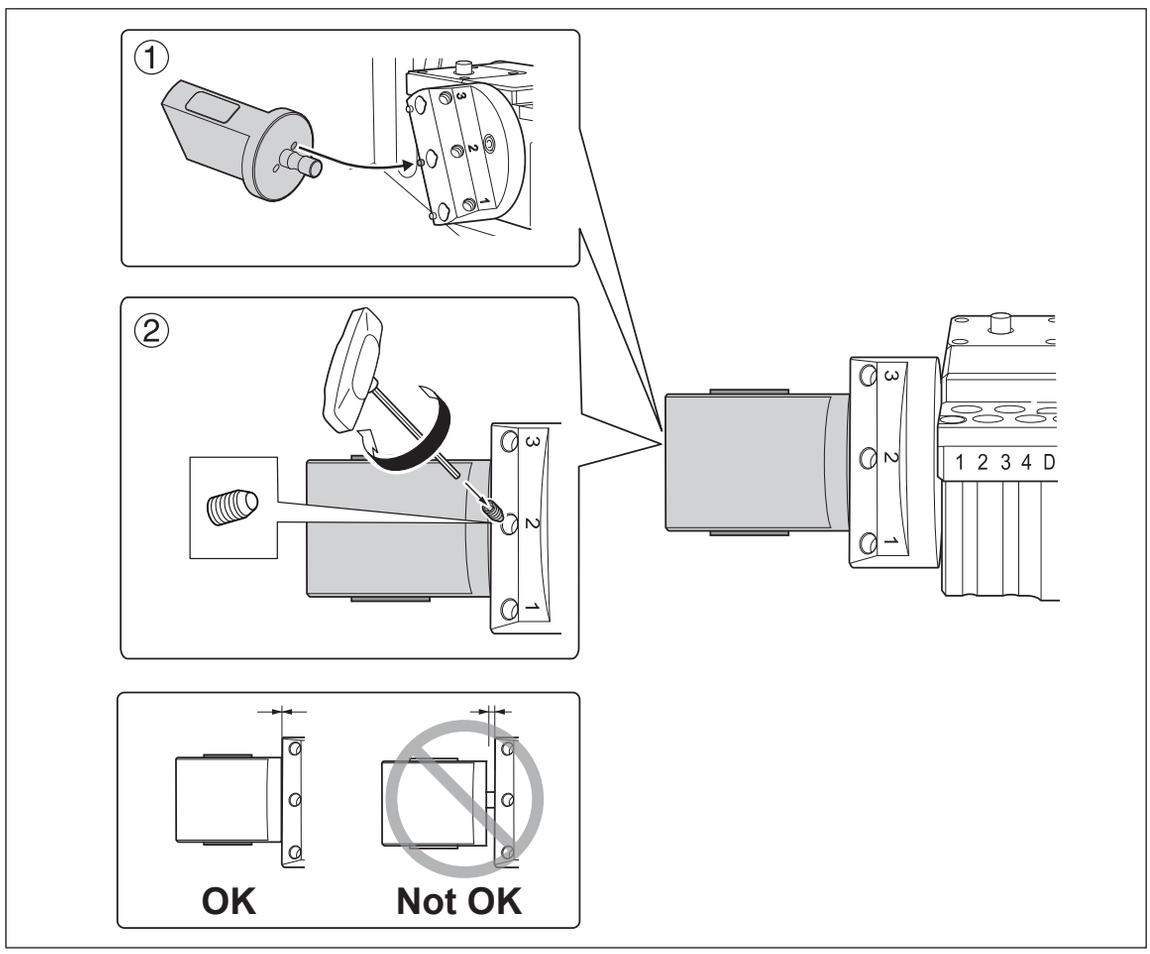


❸ Attach the automatic correction jig to hole "2" on the rotary axis.

① Align the recessed portion of the jig with the protrusion on the rotary axis, and then insert the jig.

Ensure that there is no gap between the surfaces. It does not matter which of the two recesses on the jig is aligned to the protrusion.

② Use a hexagonal screwdriver to secure the jig in place with a mounting screw.

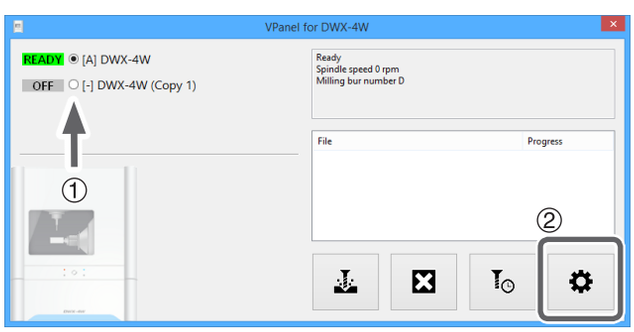


❹ Close the front cover.

❺ Show VPanel.

☞ P. 5 "Displaying VPanel"

❻



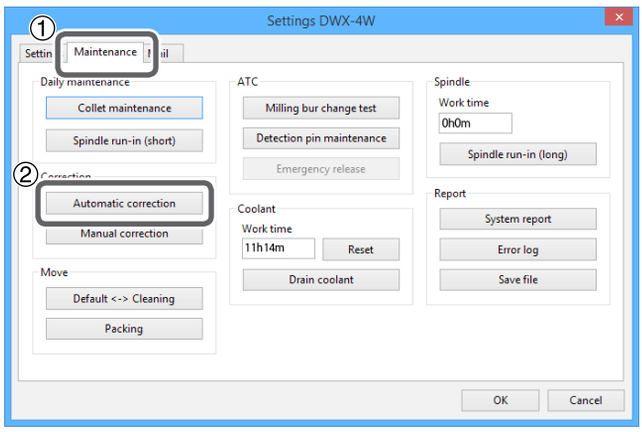
① Select a machine to operate.

Click the radio button to the left of the name of the machine to operate.

② Click ⚙ in the top window.

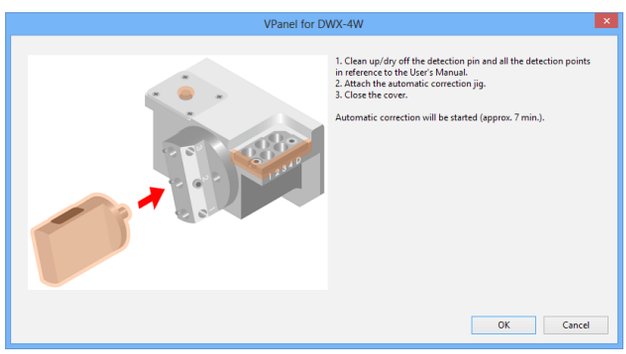
The [Settings] screen will appear.

❼



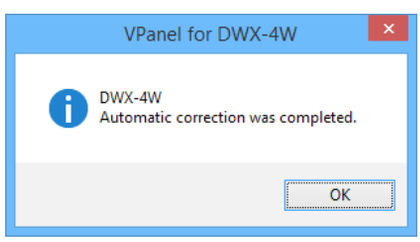
① Click the [Maintenance] tab.
② Click [Automatic correction].

❽


VPanel for DWX-4W
1. Clean up/dry off the detection pin and all the detection points in reference to the User's Manual.
2. Attach the automatic correction jig.
3. Close the cover.
Automatic correction will be started (approx. 7 min.).
OK
Cancel

The window shown in the figure appears automatically.
① Make sure that the work displayed on the screen is complete.
② Click [OK].
Automatic correction starts.

❾



Automatic correction is complete once the message in the figure is displayed.
Click [OK].

❿ Remove the automatic correction jig.

To check whether the following symptoms have been improved, actually output milling data.

➢ When the milling position is misaligned

➢ When symptoms such as a line of level difference or a hole in the Z direction occurs in the milling results

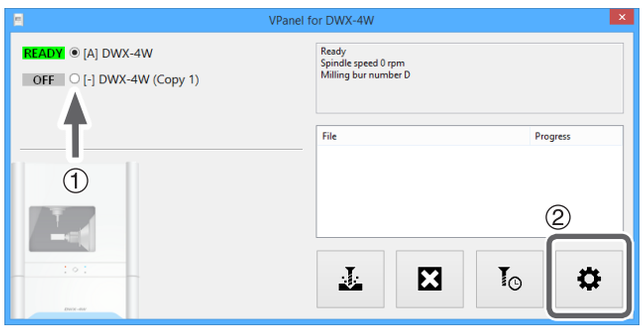
☞ P. 23 "Starting Milling"

3. Replace the detection pin for correction with the dummy pin for milling.

❶ Show VPanel.

☞ P. 5 "Displaying VPanel"

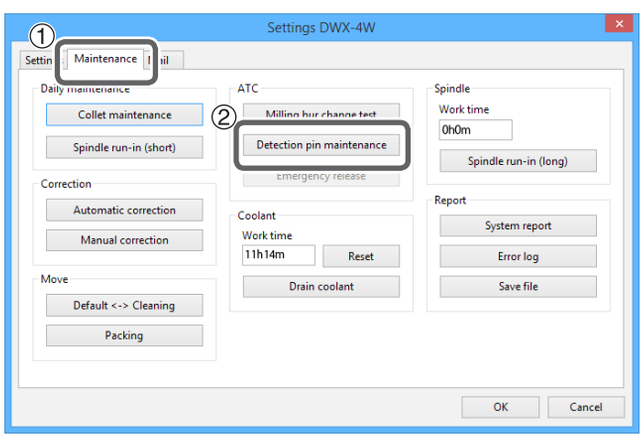
❷



① Select a machine to operate.
Click the radio button to the left of the name of the machine to operate.

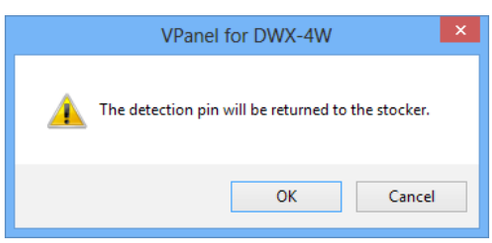
② Click ⚙ in the top window.
The [Settings] screen will appear.

❸



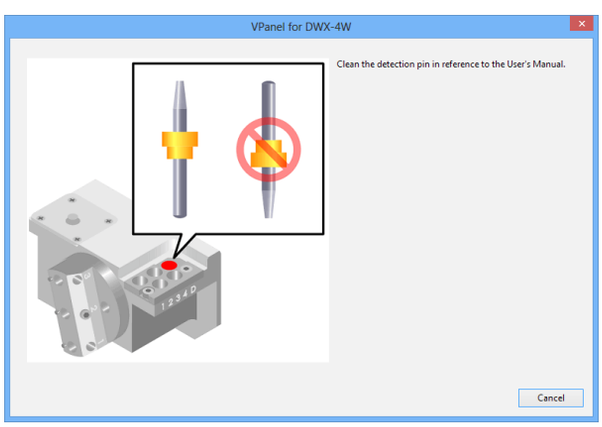
① Click the [Maintenance] tab.
② Click [Detection pin maintenance].

❹

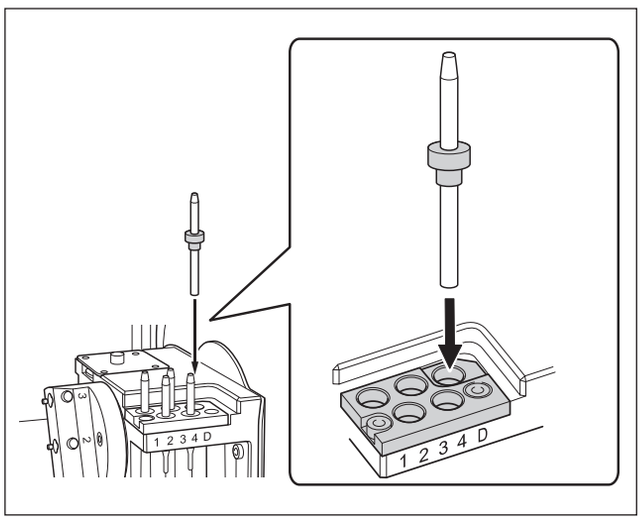


Click [OK].

❺



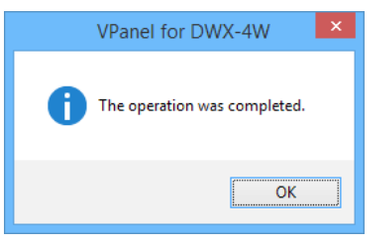
The window shown in the figure appears automatically.
Open the front cover and remove the detection pin for correction.

6 

Set the dummy pin for milling in the ATC magazine's "D" stocker.

The detection pin should be oriented with the tapered end up. Be careful not to confuse which side is up and which is down.

7 Close the front cover.

8 

If the message shown in the following figure appears, click [OK].

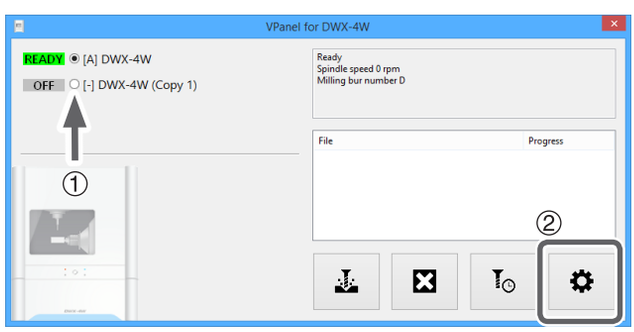
Milling Bur Change Test

Check whether the milling bur has been set in the correct position at the correct length.

Procedure

1 Verify the milling bur is set in the ATC magazine.
☞ P. 17 "Preparing a Milling Bur"

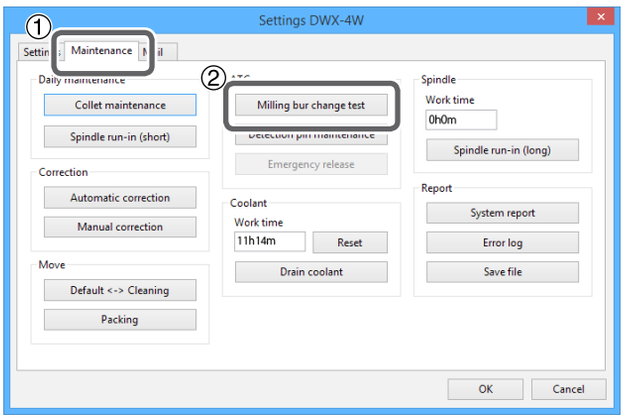
2 Show VPanel.
☞ P. 5 "Displaying VPanel"

3 

① Select a machine to operate.
Click the radio button to the left of the name of the machine to operate.

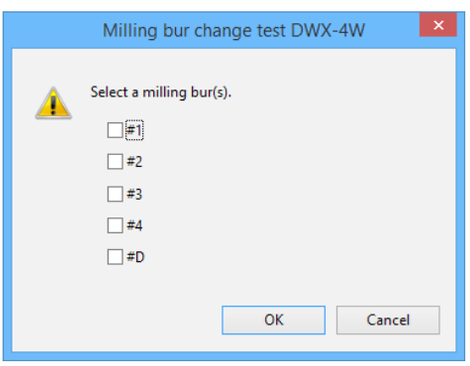
② Click ⚙ in the top window.
The [Settings] screen will appear.

❹



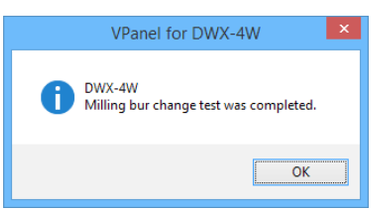
① Click the [Maintenance] tab.
② Click [Milling bur change test].

❺



① Select which milling bur you want to perform the change test for.
The numbers correspond to the ATC magazine numbers. This test checks whether the milling bur set to the selected number can be held correctly.
② Click [OK].

❻



When the message shown in the figure appears, the milling bur change test is complete.
Click [OK].

Filling the Coolant Tank/Replacing the Coolant

Situations Requiring This Work

- Filling: When the fluid level in the tank reaches the lower limit.
- Replacement: Once a week, or when the work time exceeds 15 hours.

☞ P. 18 "Filling the Coolant Tank/Replacing the Coolant"

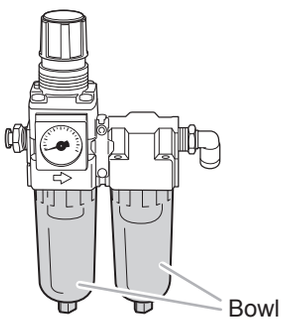
Care and Storage of the Automatic Correction Jig

The presence of rust, scratches, or grime on the automatic correction jig makes accurate detection impossible, which in turn may make it impossible to perform milling as intended, and may even damage the machine.

Care and Storage

- Before use, wipe clean using a dry, clean cloth, and make sure that no dust, rust, or scratches are found.
- When the item will be out of use for a prolonged period, store in a location with low humidity and little fluctuation in temperature.

Care of the Regulator Bowl

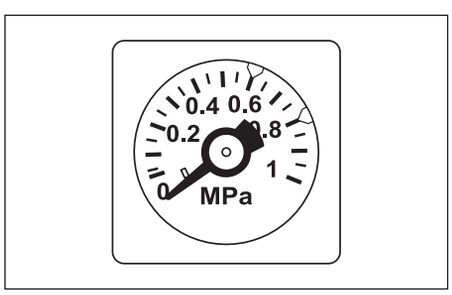


If the inside of the bowl becomes dirty, remove and wash the bowl.

⚠WARNING **Be sure to bleed off the air pressure before removing the regulator bowl.**
Failure to do so may result in a rupture or components flying off.

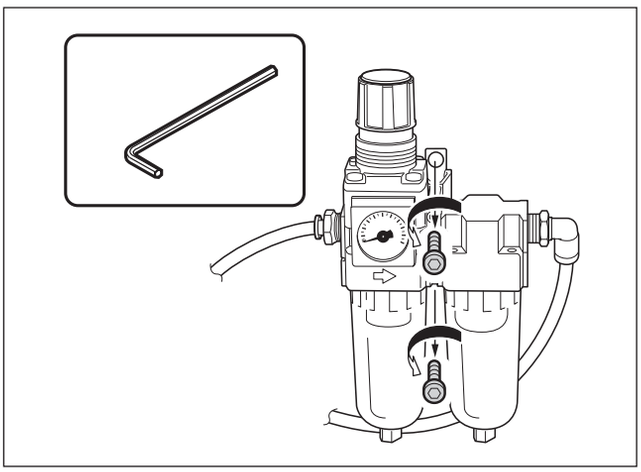
⚠WARNING **Clean the regulator bowl using a neutral detergent. Never use solvents such as gasoline, alcohol, or thinner.**
Using solvents may degrade the bowl and may result in a rupture.

Procedure

1. Stop the supply of compressed air.
2. 

Make sure that the pressure gauge reads "0."

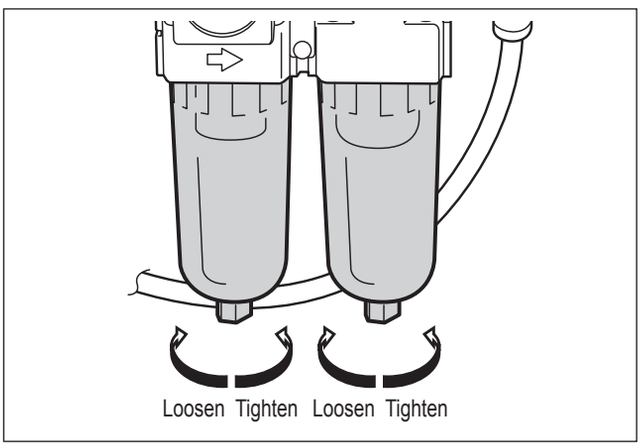
❸



Remove the regulator.

Remove the screws at the locations shown in the figure.

❹

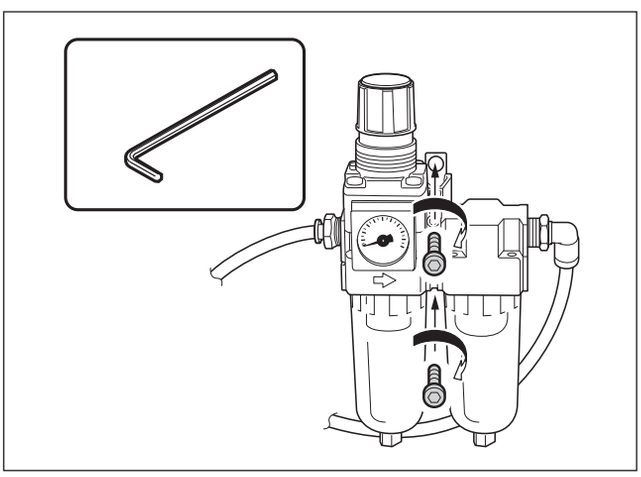


① Remove the bowl.

Wash the bowl using a neutral detergent.

② After making sure that the bowl is completely dry, attach the bowl.

❺



Secure the regulator in its original position.

❻ Return the supply of compressed air to its previous state.

Replacing Consumable Parts

Replacing the Spindle Unit

Recommended Replacement Interval

When the total work time of the spindle exceeds 2,000 hours (with variation depending on the work situation).

The spindle unit is a part that wears out. You can use VPanel to view the total work time of the spindle. Refer to VPanel to determine when replacement is needed. Contact your authorized Roland DG Corporation dealer when it is time for replacement.

Milling Bur Service Life

Necessary Replacement Interval

- Approx. 15 hours of work time

The work time for each milling bur can be viewed on VPanel.

☞ P. 12 ""Milling bur management" Dialog Box"

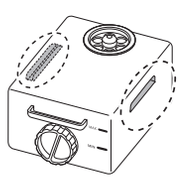
The milling bur is a consumable part. Contact your authorized Roland DG Corporation dealer when it is time for replacement.

Replacing the Coolant Tank Filter

Contact your authorized Roland DG Corporation dealer to purchase new filters.

⚠CAUTION **Do not overfill or tilt the coolant tank.**
The fluid inlet on the coolant tank is open. Overfilling or tilting will cause fluid to spill out.

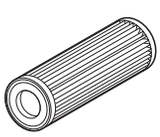
⚠CAUTION **When raising or lowering the coolant tank, hold the positions indicated in the following figure.**
Failing to do so may result in your fingers being pinched, leading to injury.



Situations Requiring This Work

- When the filter is dirty
- Once a month (varies with work conditions)

Required Tools

Optional part

Filter

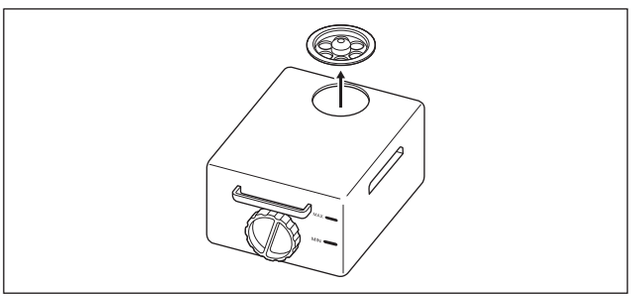
Cleaning

1. Clean the coolant tank.

❶ Remove the coolant tank.

☞ P. 18 "Filling the Coolant Tank/Replacing the Coolant"

❷



Remove the fluid inlet cap on the coolant tank.

❸ Discard the coolant.

Note

Dispose of coolant properly, in accordance with the laws in effect in your locale. Do not recklessly dispose of it in sewer systems, rivers, or streams. Doing so may have an adverse impact on the environment.

❹ Clean the inside of the coolant tank.

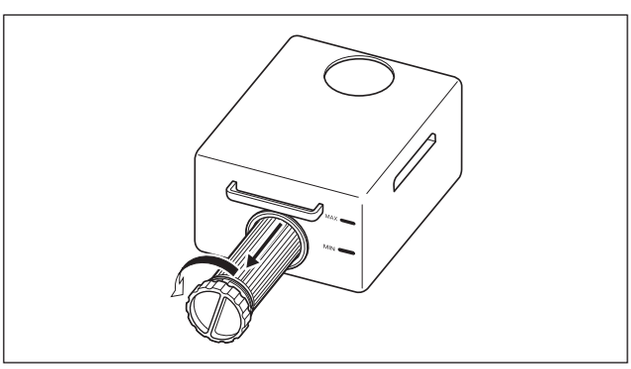
Pour a little tap water into the tank, and then shake the tank to the left and right. Dispose of any dirty water. Repeat this step until the water does not become dirty when you shake the tank.

Important

Empty the coolant tank of as much fluid as possible before replacing the filter. The coolant tank is tilted when replacing the filter, and it is easy for fluid remaining in the coolant tank to spill out in this situation.

2. Replace the coolant tank filter.

❶

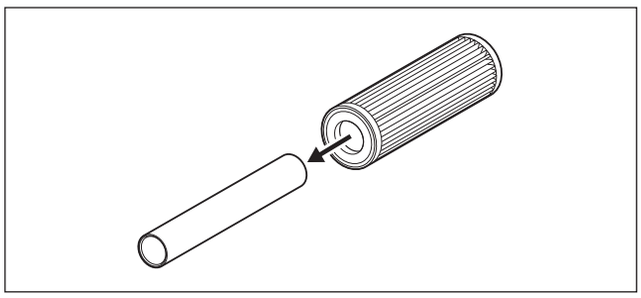


Remove the cap and filter.

Removing the filter cap allows for the filter to also be removed. If the filter does not also come out, pull it out from the hole.

Important

Fluid that has been absorbed into the filter may spill out. We recommend that you place a towel or some newspapers under the tank.

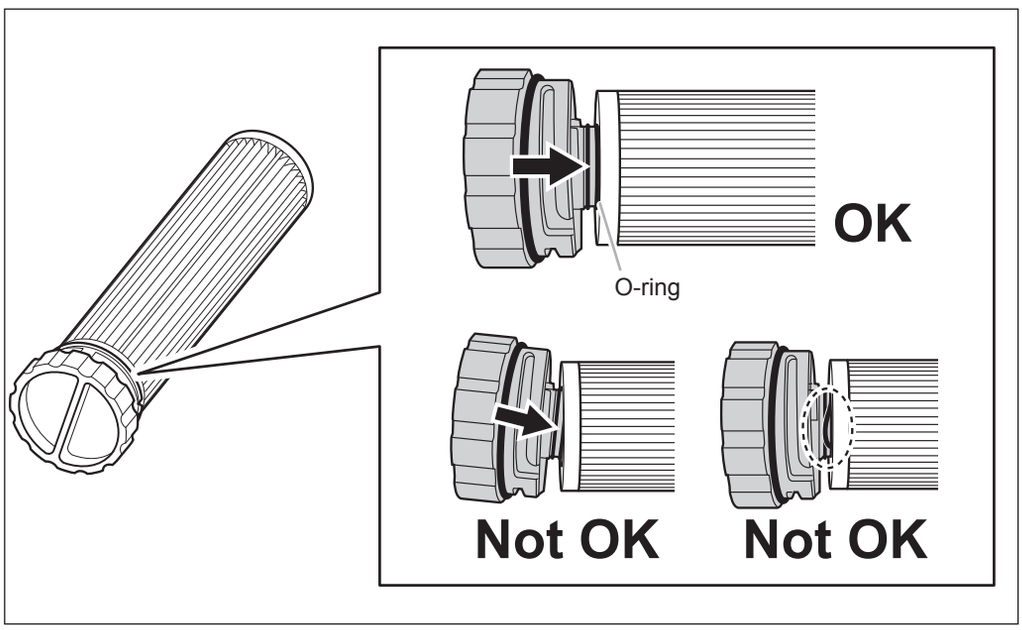
❷ 

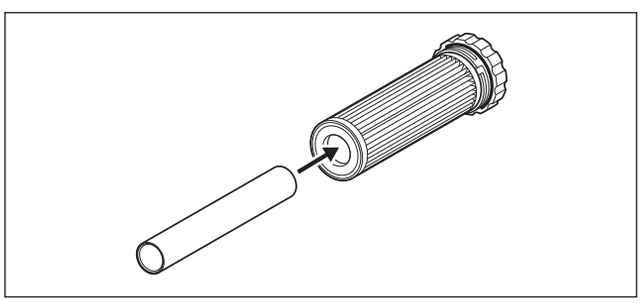
Remove the pipe from the center of the filter.

❸ Clean the pipe.
Wash the pipe with water.

❹ Attach the cap to a new filter.

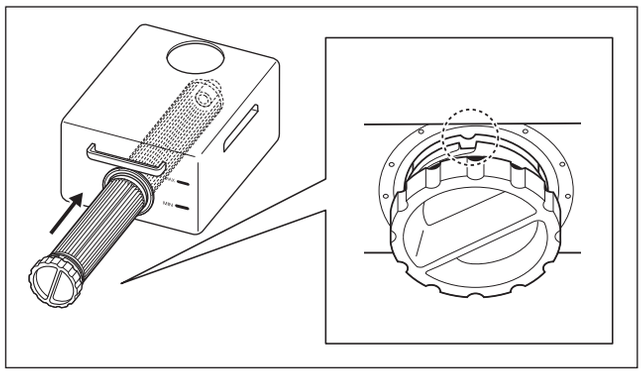
Important
Keep the cap aligned with the filter and insert straightly. If inserted at an angle or if the O-ring is twisted, it will not be possible to obtain sufficient filtration.



❺ 

Insert the removed pipe into the center of the new filter.
The pipe can be inserted in any direction.

❻



Insert the new filter and cap into the coolant tank.

Insert the new filter and cap through the hole on the side of the coolant tank.

Align the hole on the side of the filter with the protrusion at the back of the tank.

At the same time, align the indentation on the filter cap with the protrusion on the tank. If the alignment is not correct, the filter will not fall all the way into place.

⚠CAUTION **Handle the filter carefully.**

Dropping the filter or grasping it too strongly may damage the filter. If the filtration function does not work due to damage, the coolant line may be clogged with milling waste, which may lead to coolant leaks and fire and electrical shock due to current leakage.

❼ Fill with coolant.

☞ P. 18 "Filling the Coolant Tank/Replacing the Coolant"

❽ Return the coolant tank to its original position.

☞ P. 18 "Filling the Coolant Tank/Replacing the Coolant"

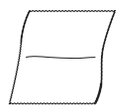
Replacing the Collet

Recommended Replacement Interval

- When scratches or rust appears on the tapered portion of the collet
- If the collet is deformed

The collet is a part that wears out. If a large force, such as an overload during milling, is applied to the collet, the collet may have become deformed. In such cases, it is necessary to replace the collet. Contact your authorized Roland DG Corporation dealer to purchase a replacement collet.

Required Tools

Included items					Commercially available item
					
Collet replacement jig	Collet tap	Taper cleaner	Collet brush	Grease	Dry cloth

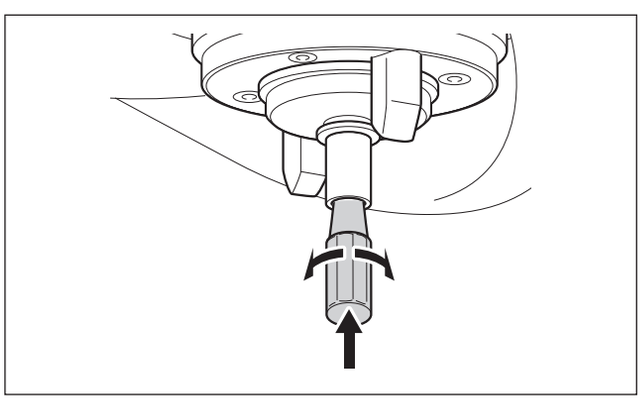
Note

Collet replacement should be completed quickly. This is because a sufficient amount of compressed air must be supplied while performing the work, and if the work is not completed promptly, the compressed air supply will be insufficient. If the compressed air can no longer be supplied, an error will occur, which will result in the need to start the operation over from the beginning.

Procedure

1. Remove the old collet.

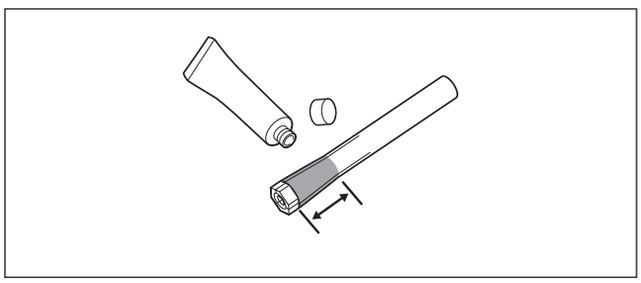
   Refer to P. 28 "Collet Maintenance" to remove the old collet.

2. 

   Clean the inside of the spindle (where contact with the collet is made) with the taper cleaner.

   Rotate the taper cleaner left and right as if you are brushing the inner portion of the spindle.

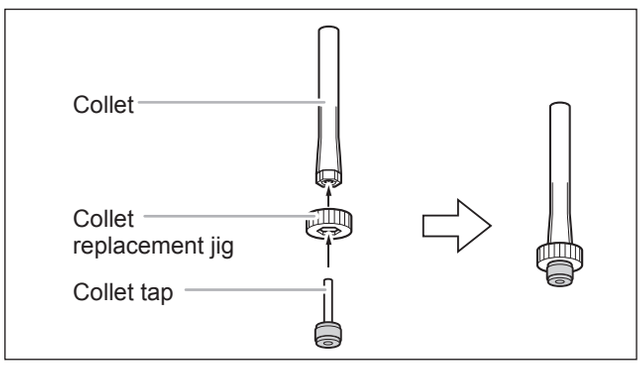
❸



Lightly apply grease to the tapered portion on the outside of the new collet.

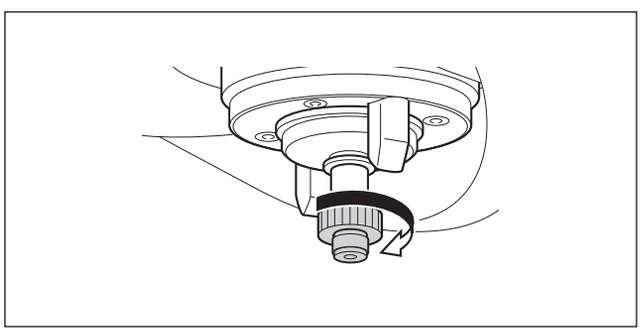
A thin application is sufficient. Do not apply excessively.

❹



Assemble the collet, collet replacement jig, and collet tap as shown in the figure, and then insert this assembly into the spindle.

❺

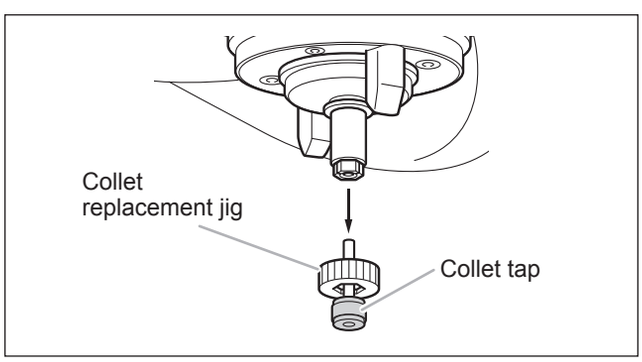


While gently pressing the collet tap up into the hole, rotate the collet replacement jig in the direction indicated in the figure to tighten the collet.

Keep rotating until the collet replacement jig will not rotate any more.

The collet will be subjected to compressed air. Be careful to prevent the collet from falling out.

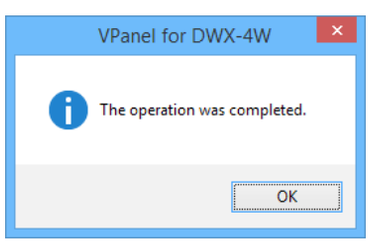
❻



Attach the collet replacement jig and the collet tap.

❼ Close the front cover.

❽



Replacing the collet is complete once the message in the figure is displayed.

Click [OK].

Extended Periods of Non-Use / Moving the Machine

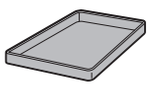
Draining the Coolant Lines

Drain the fluid collected in the coolant lines running through the machine.

Situations Requiring This Work

- When there are no plans to use the machine for 1 week or longer (or when the machine has not been used for 1 week or longer)
- Before moving the machine (especially when there is a risk of coolant spillage)

Required Tools

Commercially available item

Tray

Draining

Procedure

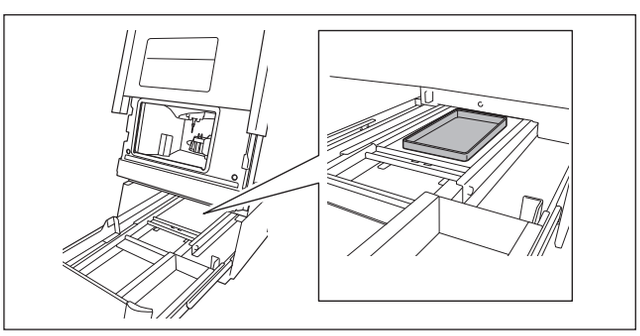
1. If a workpiece or a milling bur is mounted on the machine, remove it.

   IMPORTANT! Do not remove the detection pin.

2. Remove the coolant tank and discard the coolant.

   Proceed to the next step without returning the coolant tank to its original position.

   ☞ P. 18 "Filling the Coolant Tank/Replacing the Coolant"

3. 

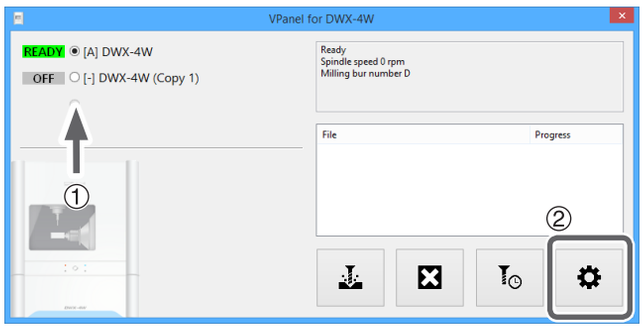
   Place the tray with the coolant tank inside the bottom cover in the stored position.

   Important
   Because some water may drip when draining the pathways, keep the tray in place until the coolant tank is returned to its original position.

4. Show VPanel.

   ☞ P. 5 "Displaying VPanel"

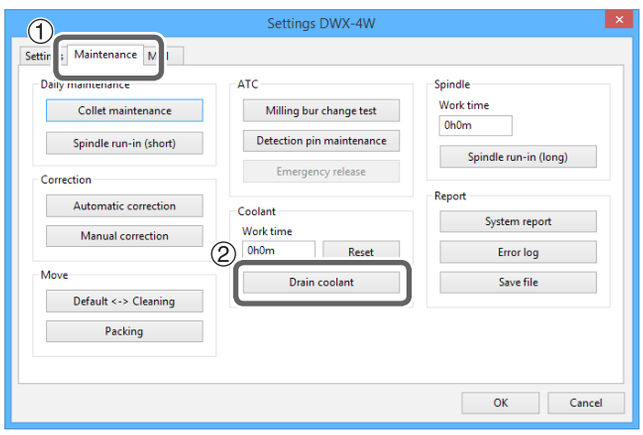
5



① Select a machine to operate.
Click the radio button to the left of the name of the machine to operate.

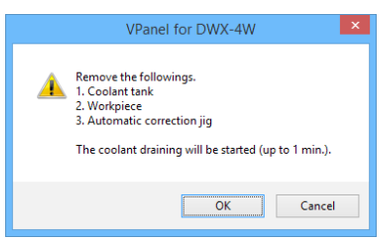
② Click ⚙ in the top window.
The [Settings] screen will appear.

6

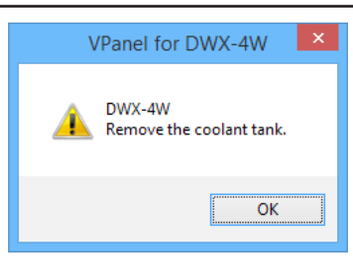


① Click the [Maintenance] tab.
② Click [Drain coolant].

7

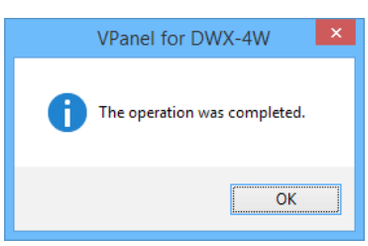


① Make sure that the work displayed on the screen is complete.
② Click [OK].
The coolant will begin to be discharged.



If the coolant tank has been attached, the message shown in the figure to the left will be displayed. Remove the coolant tank, click [OK], and then perform the procedure again from step 5.

8



Draining of the coolant lines is complete once the message in the figure is displayed.
Click [OK].

⑨ Remove the tray placed inside the bottom cover.
Dispose of any water that has accumulated in the tray.

⑩ Return the coolant tank to its original position.

Spindle Run-In (Long)

Situations Requiring This Work

➢ When the machine has not been used for 1 month or longer

Performing Run-In

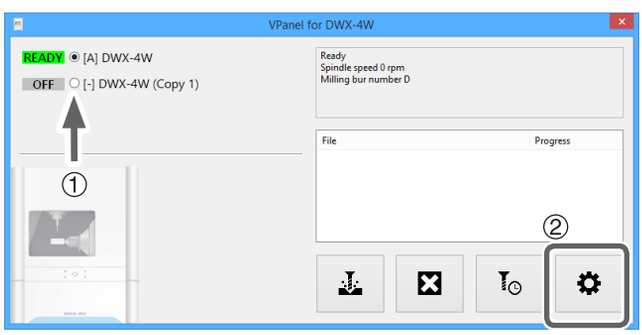
Procedure

① Close the front cover and turn on the power.

② Show VPanel.

☞ P. 5 "Displaying VPanel"

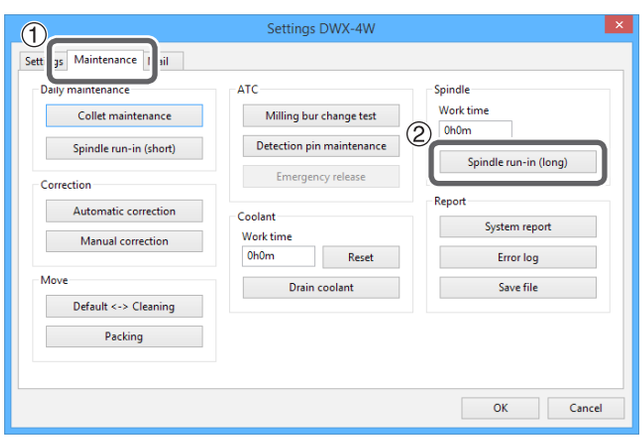
③



① Select a machine to operate.
Click the radio button to the left of the name of the machine to operate.

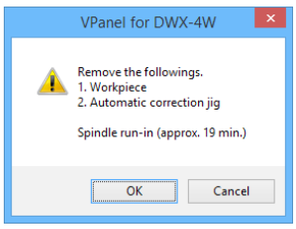
② Click ⚙ in the top window.
The [Settings] screen will appear.

④



① Click the [Maintenance] tab.
② Click [Spindle run-in (long)].

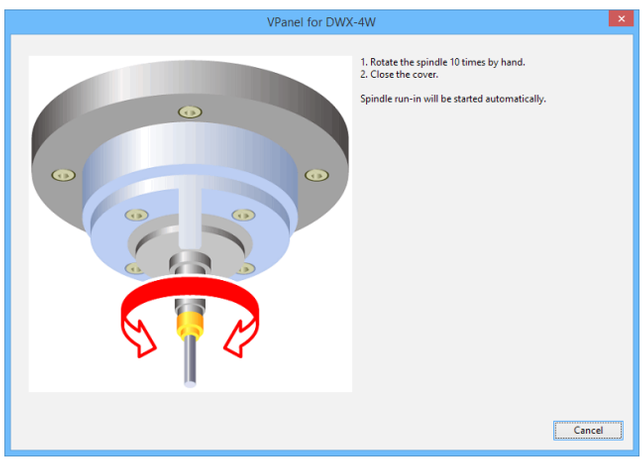
❺



If a workpiece or the automatic correction jig is attached:
Remove the workpiece or the automatic correction jig, close the front cover, and then click [OK].

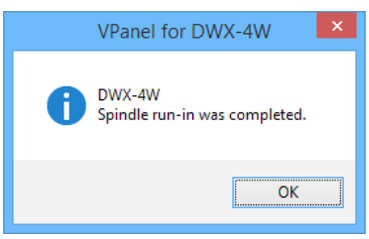
If no workpiece or automatic correction jig is attached:
Click [OK].

❻


VPanel for DWX-4W
1. Rotate the spindle 10 times by hand.
2. Close the cover.
Spindle run-in will be started automatically.
Cancel

① Open the front cover.
② Spin the spindle around 10 times in either direction by hand.
③ Close the front cover.
Spindle run-in will begin.
The machine status light will flash blue. The remaining work time will be displayed on VPanel.

❼



When the message shown in the figure appears, the spindle run-in (long) is complete.
Click [OK].

⚠CAUTION **Do not insert your hands or other objects into the machine or look into the inside of the machine with the front cover open until the spindle has come to a complete stop.**
If you open the front cover before the spindle comes to a complete stop, an emergency stop will occur. Due to inertia, the spindle will continue to rotate even after an emergency stop has occurred. It is dangerous to touch a rotating tool. Also, the coolant continues to flow until the spindle comes to a complete stop. Coming into contact with sprayed coolant may be hazardous to your health.

Attaching the Retainers

Situations Requiring This Work

➢ When moving the machine
Attach the retainers to protect the machine from vibration during shipment.

Required Tools

Commercially available item
Securing tape

Attaching the Retainers

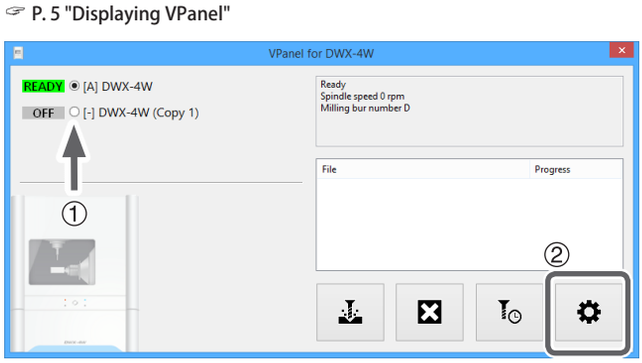
IMPORTANT!

Make sure to drain all coolant lines before installing the retainers.
☞ P. 55 "Draining the Coolant Lines"

1. Move the position of the spindle head.

❶ Close the front cover and turn on the power.

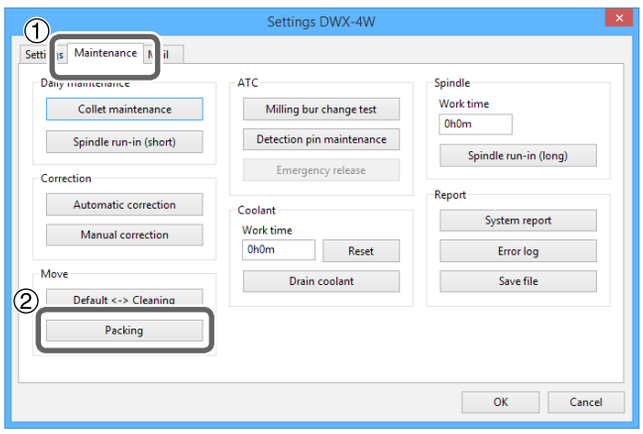
❷ Show VPanel.
☞ P. 5 "Displaying VPanel"

❸ 

① Select a machine to operate.
Click the radio button to the left of the name of the machine to operate.

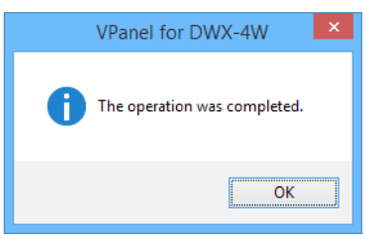
② Click ⚙ in the top window.
The [Settings] screen will appear.

❹



① Click the [Maintenance] tab.
② Click [Packing].
The spindle will move.

❺

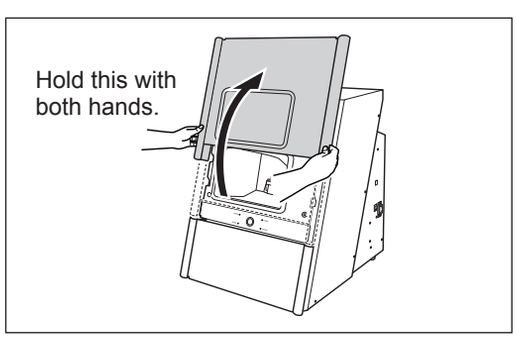


When the message shown in the figure appears, movement of the spindle will be complete.
Click [OK].

2. Attach the retainer inside the front cover.

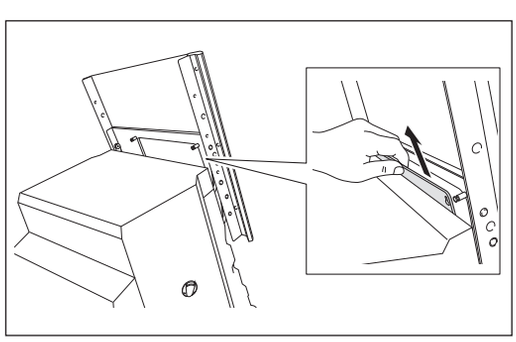
❶ Make sure the front cover is closed, and turn off the power.

❷



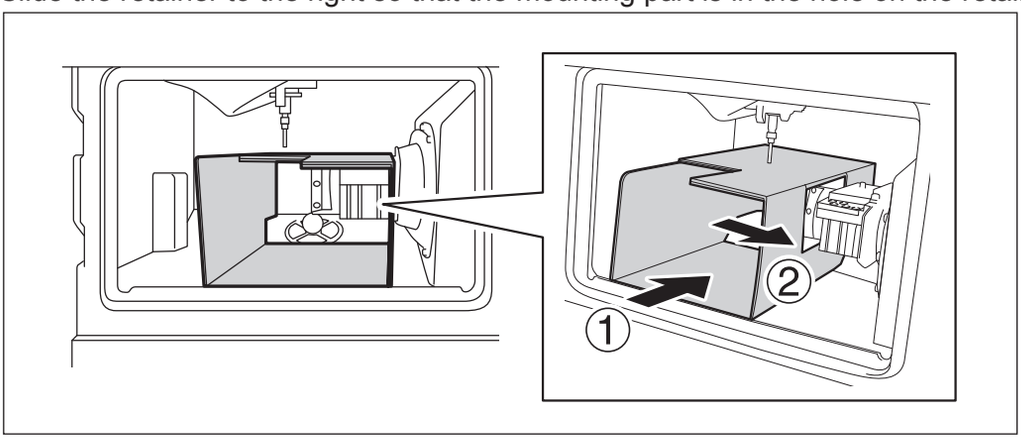
Open the front cover.

❸

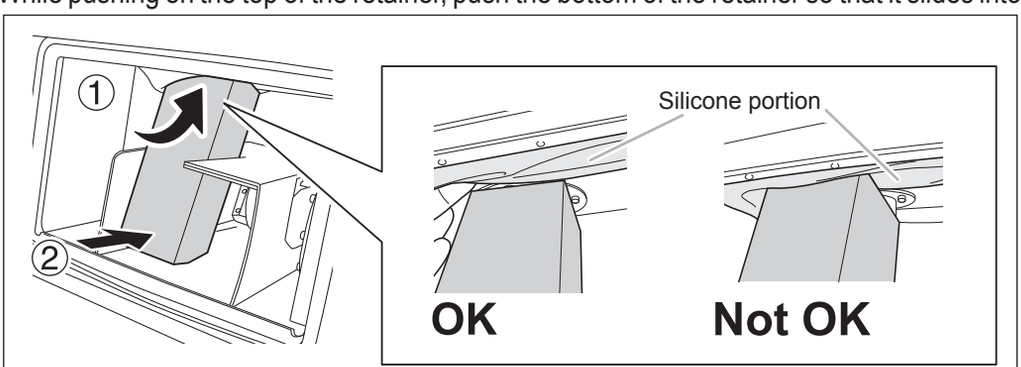


Remove the waterproof plate.

❹ Attach retainer C.
① Insert the retainer straight all the way in.
② Slide the retainer to the right so that the mounting part is in the hole on the retainer.



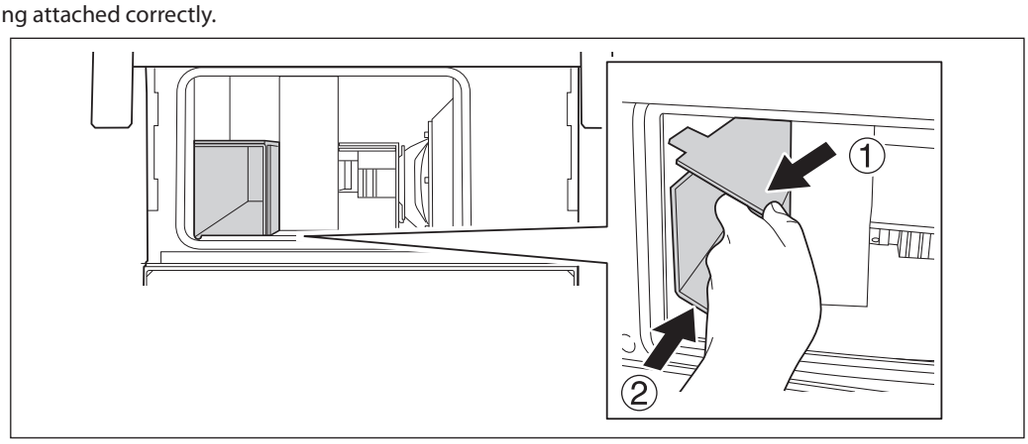
❺ Attach retainer B.
① Align the top of the retainer with the area around the spindle head.
② While pushing on the top of the retainer, push the bottom of the retainer so that it slides into place.



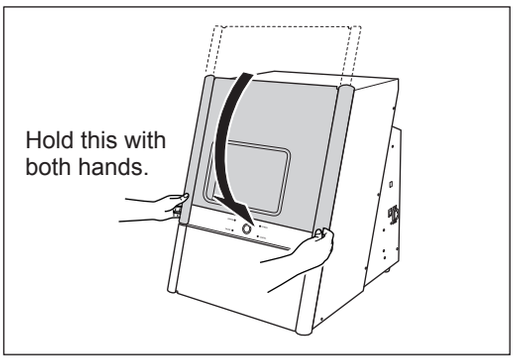
IMPORTANT!

Be careful not to pinch the silicone portion around the spindle head with the retainer. Doing so may weaken the secureness of the retainer.

❻ Attach retainer A.
① As shown in the figure, push the side of retainer A that is touching retainer B toward the inside to change the shape of retainer A.
② Push the deformed retainer all the way in.
If the retainer is not deformed, it will catch on the uneven area inside the machine and prevent the retainer from being attached correctly.



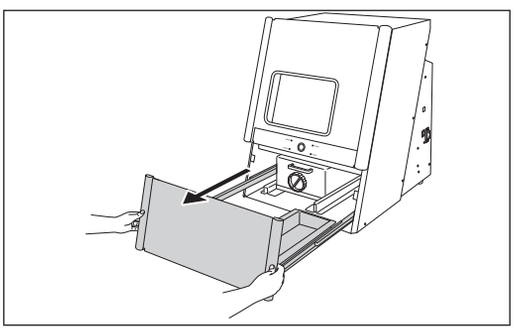
❼



Close the front cover.

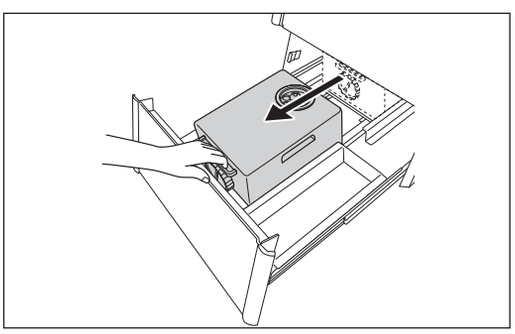
3. Attach the retainer inside the bottom cover.

❶



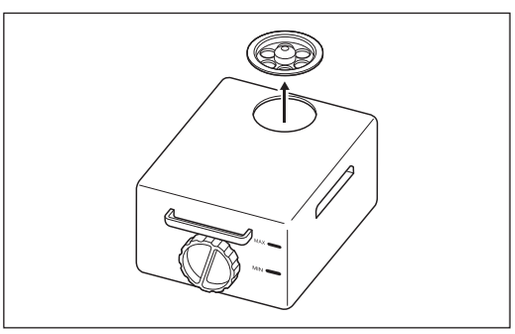
Open the bottom cover.

❷



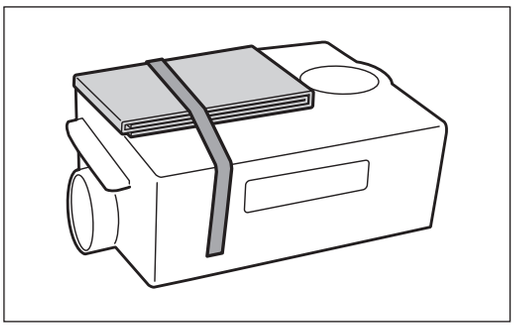
Pull out the coolant tank.

❸



Remove the fluid inlet cap on the coolant tank.
Place the fluid inlet cap in the storage compartment.

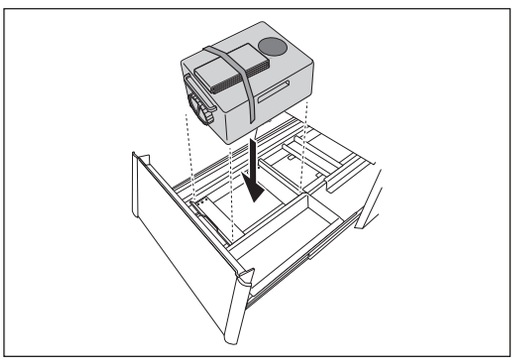
❹



Attach retainer D.

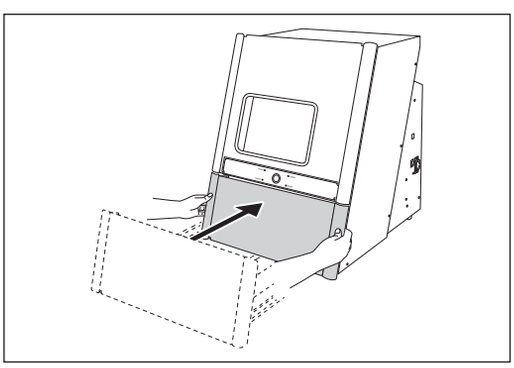
Use tape to secure the retainer to the coolant tank. Commercially available tape can be used to secure the retainer to the tank.

❺



Return the coolant tank to its original position.

❻



Close the bottom cover.

4. Troubleshooting

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Machine Problems

The Machine Does Not Run/Cannot Generate Output

Is the front cover open?	Keep the front cover closed during startup. For safety, initialization is not performed when the cover is open at startup.	-
Is anything caught on the spindle unit or rotary axis unit?	Temporarily turn the power off, and then check whether something has become caught and is impeding initialization. After you remove the obstruction, turn on the machine.	-
Is the milling bur caught on anything?	The milling bur attached to the spindle unit may fail to perform initialization if it is caught on the workpiece or rotary axis unit. Try to detach the milling bur using the emergency release function in VPanel.	P. 9

The Operation Button Does Not Respond

Is the front cover open?	This machine restricts some operations when the front cover is open. Close the front cover.	-
Are you wearing gloves?	The built-in panel's operation button will not respond if you are wearing gloves. Operate the button with a bare hand.	-

VPanel Does Not Recognize the Machine

Is the cable connected?	Make sure that the cables are connected. ☞ "Setup Guide" ("Connecting the Cables")	-
Is the driver installed correctly?	If the connection to the computer is not made in the procedure described, the driver may fail to install correctly. VPanel will not function normally if the driver is not configured correctly. Check again to ensure that the connection was made using the correct procedure.	P. 73
Was the procedure for connecting multiple machines or for changing the ID of any machine performed correctly?	There is a possibility that the connection procedure was performed incorrectly. Make sure that connections were performed correctly. When changing a machine's ID, remember that it is necessary to restart both the machine and VPanel. "Setup Guide" ("Connecting Multiple Units")	-

No Data Is Being Output to the Machine, or the Machine Will Not Operate Even Though Data Is Being Output

Is the front cover open?	If the front cover is open, the machine will not start milling even if milling data is being received. Close all the covers, and then press the built-in panel's operation button to start milling.	-
Does VPanel recognize the machine?	Verify that a message other than "Offline" ("OFF" display) is shown on VPanel. If "Offline" (OFF) is displayed on VPanel regardless of the machine being on, check the cable connections and similar items.	P. 65
If multiple machines are connected, is the correct machine selected?	Select the machine to output milling data to on the VPanel screen.	-
Is operation paused?	Operation is paused if the PAUSE LED is lit. When the machine is paused, milling stops and some operations are restricted. Quickly pressing the built-in panel's operation button of the machine will cancel the pause. Pressing and holding on the operation button will abort milling.	-
Is initialization or a data cancel in progress?	Milling data received during initialization or a data cancel will be cancelled. Make sure to output milling data after confirming that "READY" is displayed for the machine's operation status in the VPanel top window.	P. 7
Is the milling data correct?	There may be problems in the milling data parameters. Check the milling data.	-
Has an error occurred?	The error LED will flash if an error occurs. A description of the error is displayed in VPanel.	P. 77

The Computer Shuts Down when Connecting Multiple Machines

Are machines with the same ID connected to the computer at the same time?	Connecting more than one machine with the same ID to a computer at the same time may cause the computer to shut down. If the computer shuts down, turn off the power of all connected machines, and then disconnect the USB cables from the computer. Restart the computer, and then start VPanel. If VPanel will not start, reinstall it. After that, configure the settings so that no machines are assigned the same ID. ☞ "Setup Guide" ("Connecting Multiple Units")	-

Compressed Air Does Not Come Out

Is the power switched on?	Compressed air is not supplied when the power is off.	-
Is the regulator properly connected and the pressure settings correctly configured?	Check the connection. If there are no connection problems, check whether the regulator scale indicates zero. If the set pressure of the regulator is zero, compressed air will not be supplied. ☞ "Setup Guide" ("Preparing the Regulator")	P. 17
Is the air supply hose bent or flattened?	If the hose is bent or flattened, straighten it to enable the flow of compressed air.	-

Automatic Correction Fails

Is the automatic correction jig or detection pin dirty?	Clean away any grime on the automatic correction jig, the detection pin, or the milling bur sensor tip (the side that is in contact with the milling bur). Fouling due to buildup of milling waste or the like on any of these may impede correct sensor operation, making correct detection impossible.	P. 39
Is the automatic correction jig properly attached?	Verify that the automatic correction jig is properly attached.	P. 39

The Milling Bur Management Information was Lost

Was the machine name (printer name) changed?	Milling bur info is saved per machine name (printer name). Before changing the machine name (printer name), make sure to record the milling bur info separately. Milling bur info can be recovered by returning the machine name (printer name) to the original name.	-

Collet Maintenance Cannot Continue Due to an Error Occurring

Is the message "1039-0000 The pressure of the compressed air is too high or low." displayed on VPanel?	If you take too long to perform the collet maintenance, the supply of compressed air will become insufficient, and it will no longer be possible to continue the collet maintenance. Follow the procedure below to perform the maintenance again. 1. Turn off the machine's power. 2. Supply the appropriate amount of compressed air. ☞ P. 17 "Preparing Compressed Air (Setting the Regulator)" 3. Open the front cover. 4. Turn on the power. 5. Click [OK] in the message window displayed on VPanel to clear the message. 6. In VPanel, click the [Maintenance] tab, and then click [Emergency release]. 7. Click [OK] in the message window displayed. 8. The collet is open, so use the collet replacement jig and the collet tap to close the collet. 9. Close the front cover. When the machine stops operating and the status light turns on in blue, the machine is in the ready status. 10. Perform the collet maintenance again.	-
Is anything caught on the spindle unit or rotary axis unit?	Check whether something has become caught and is impeding initialization.	-

Water Is Leaking from the Front Cover

Is the waterproof plate attached properly?	If the waterproof plate is not attached properly, water may leak. Check the installation of the waterproof plate. For information on how to attach the waterproof plate, refer to the "Setup Guide" or the page listed to the right ("Cleaning the Waterproof Plate").	P. 38

Milling Quality Problems

The Milling Results Are Not Attractive

Is the workpiece firmly secured in place?	Check the mounting condition of the workpiece. Fasten the workpiece in place securely so that it will not slip out of place or come loose because of milling bur pressure or vibration during milling.	P. 24
Is the milling bur worn?	If the same milling bur is used for milling for a long period of time, it will become worn and affect milling results. Try replacing the milling bur with a new one. The work time of the milling bur can also be managed in VPanel.	P. 12
Are the milling conditions too strict?	Strict milling conditions may affect milling results. Review the CAM milling conditions.	-
Is the machine out of correction?	The origin point may become out of position due to prolonged use or relocating the machine, which can result in a line of level difference. Perform automatic correction. If expected results cannot be obtained even after performing automatic correction, perform manual correction. With manual correction, changing the Y value under Origin point may improve the situation.	P. 39 P. 11

There Is a Line of Level Difference in the Milling Results

Is the machine out of correction?	The origin point may become out of position due to prolonged use or relocating the machine, which can result in a line of level difference. Perform automatic correction. If expected results cannot be obtained even after performing automatic correction, perform manual correction. With manual correction, changing the Y value under Origin point may improve the situation.	P. 39 P. 11
Are the CAM milling conditions correct?	Incorrect CAM milling settings may lead to line of level differences. Review the CAM milling conditions.	-

The Dimensions of the Milling Results Do Not Match

Does the milling bur diameter match the CAM settings?	Check the CAM settings.	-
Does the set temperature of the sintering program match the workpiece?	Check the set temperature of the sintering program to see if it matches the workpiece of the manufacturer used.	-

Chipping (Edges of Milling Products Become Chipped) Occurs

Is the installation base of the machine secure?	The vibration from cutting can shake the installation base.	-
Is the workpiece firmly secured in place?	Check the mounting condition of the workpiece. Fasten the workpiece in place securely so that it will not slip out of place or come loose because of milling bur pressure or vibration during milling.	P. 24
Is the milling bur worn?	If the same milling bur is used for milling for a long period of time, it will become worn and affect milling results. Try replacing the milling bur with a new one. The work time of the milling bur can also be managed in VPanel.	P. 12
Is the collet deformed?	The collet may be deformed if the tip of the spindle strikes the rotary axis, etc., or if the spindle is locked. Replace the collet if it is deformed.	P. 53
Is the thickness specified in the milling data excessively thin?	If the specified finish thickness of workpieces is excessively thin, chipping is likely to occur. Check the shape specified in the milling data.	-
Are the milling conditions too strict?	Strict milling conditions may affect milling results. Review the CAM milling conditions.	-

A Hole Opens in the Milling Results

Does the milling bur diameter match the CAM settings?	Check the CAM milling bur settings.	-
Is the machine out of correction?	The origin point may become out of position due to prolonged use or relocating the machine, which can affect milling results. Perform automatic correction. If expected results cannot be obtained even after performing automatic correction, perform manual correction. With manual correction, changing the Z value in the + direction in Origin point may improve the situation.	P. 39 P. 11
Are the milling conditions too strict?	Strict milling conditions may affect milling results. Review the CAM milling conditions.	-
Is the thickness specified in the milling data excessively thin?	The finish thickness of milled products needs to be 0.8 mm or more. Check the thickness specified in the milling data.	-

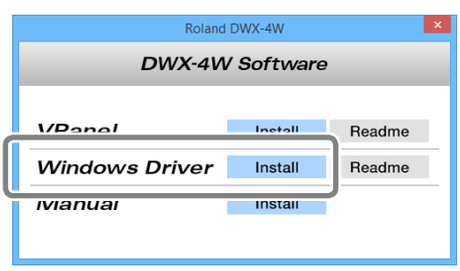
Installation Problems

Installing the Driver Separately

With this machine, you can also install the driver, software, and electronic-format manual all at once. To install all at once, see "Setup Guide" ("Installing the Software").

Procedure

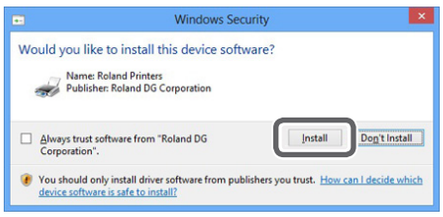
1. Before installation, confirm that the machine and the computer are not connected with the USB cable.
2. Log on to Windows as an "Administrator."
3. Insert the Roland Software Package CD into the CD-ROM drive of the computer.
   When the automatic playback window appears, click [Run menu.exe]. If a [User Account Control] window appears, click [Allow] or [Yes], and continue with the installation. The setup menu screen appears automatically.
   If the driver is already installed, uninstall it.
   ☞ P. 75 "Uninstalling the Driver"
   Go to Step 4 if the driver is not installed or if it has been uninstalled.
4.

   Click [Custom Install] for the "DWX-4W Software."
5. 

   Click [Install] for the "Windows Driver."

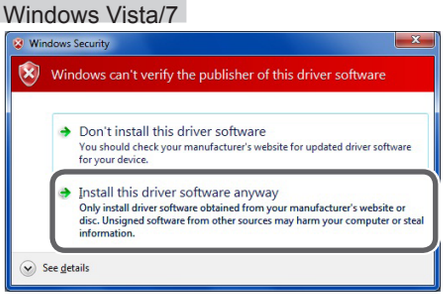
If the Following Window Is Displayed during Installation

Windows 8/8.1


Windows Security
Would you like to install this device software?
Name: Roland Printers
Publisher: Roland DG Corporation
Always trust software from "Roland DG Corporation".
Install
Don't Install
You should only install driver software from publishers you trust. How can I decide which device software is safe to install?

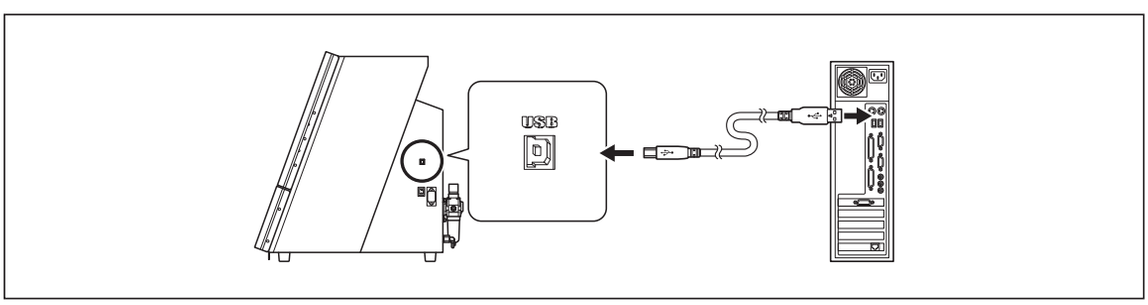
Click [Install].

Windows Vista/7


Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.
See details

Click [Install this driver software anyway].

6. Follow the on-screen instructions to proceed with the installation.
7. When the installation finishes, click × on the setup menu.
8. Remove the Roland Software Package CD.
9. Turn on the power to the machine.
10. Connect the machine to the computer using the USB cable.
    - ➢ If connecting more than one unit of this machine to a single computer, refer to "Setup Guide" ("Connecting Multiple Units").
    - ➢ For the USB cable, use the included cable.
    - ➢ Do not use a USB hub. Connection may not be possible.



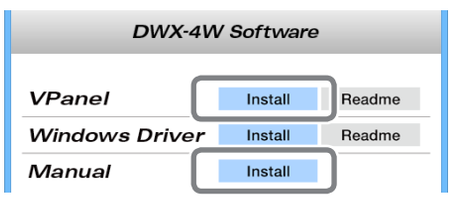
The driver will be installed automatically.

Installing the Software and the Electronic Manual Separately

Procedure

1. Log on to Windows as an "Administrator."
2. Insert the Roland Software Package CD into the CD-ROM drive of the computer.
   When the automatic playback window appears, click [Run menu.exe]. If a [User Account Control] window appears, click [Allow] or [Yes], and continue with the installation. The setup menu screen appears automatically.
3. Click [Custom Install] for the "DWX-4W Software."

4. Click [Install] for "VPanel" or "Manual."



5. Follow the on-screen instructions to proceed with the installation.
6. When the installation finishes, click × on the setup menu.
7. Remove the Roland Software Package CD.

> With this machine, you can also install the driver, software, and electronic-format manual all at once. To install all at once, see "Setup Guide" ("Installing the Software").

Driver Installation Is Impossible

If installation quits partway through or when VPanel does not recognize the machine, the driver may not have been installed correctly. In such cases, perform the following procedures. (If procedure A does not solve your problem, perform procedure B.)

Windows 8/8.1 (procedure A)

1. Connect the machine to the computer with the USB cable and turn on the machine.
2. Click [Desktop].
3. Point to the lower-right corner of the screen to display the charms, and click [Settings].
4. Click [Control Panel].
5. Click [Devices and Printers].
6. Check that the model you are using is displayed under "Unspecified."
7. Right-click the icon of the model you are using, and then click [Remove device].
8. If the message "Are you sure you want to remove this device?" is displayed, click [Yes].
9. Check that the icon for the model you are using is no longer displayed under "Unspecified."
10. Temporarily disconnect the USB cable connecting the machine to the computer, and then reconnect the devices.

If the printer icon for the machine you are using is displayed under "Printer," the driver has been successfully installed.
If you could not solve your problem by following this procedure, perform the procedure under "Windows 8/8.1 (procedure B)."

Windows 8/8.1 (procedure B)

1. Connect the machine to the computer with the USB cable and turn on the machine.
2. If the [Found New Hardware] appears, click [Cancel] to close it. Disconnect any USB cables for printers or other such equipment other than this machine.
3. Click [Desktop].
4. Point to the lower-right corner of the screen to display the charms, and click [Settings].
5. Click [PC info].
6. Click [Device Manager]. If the [User Account Control] window appears, click [Continue]. [Device Manager] appears.
7. Click [Show hidden devices] from the [View] menu.
8. In the list, find [Printers] or [Other devices], then double-click it. Under the selected item, click the name of the model you are using or [Unknown device].
9. Go to the [Action] menu, and click [Uninstall].
10. In the "Confirm Device Uninstall" window, click [OK]. Close [Device Manager].
11. Detach the USB cable from the computer, and then restart Windows.
12. Uninstall the driver. Carry out the steps from step 3 on P. 75 "Uninstalling the Driver" (Windows 8/8.1) to uninstall the driver.(Windows 8/8.1)
13. Reinstall the driver again according to the procedure in "Setup Guide" ("Installing the Software") or P. 71 "Installing the Driver Separately".

Windows 7 (procedure A)

1. Connect the machine to the computer with the USB cable and turn on the machine.
2. From the [Start] menu, click [Devices and Printers].
3. Check that the model you are using is displayed under "Unspecified."
4. Right-click the icon of the model you are using, and then click [Troubleshooting].
5. When a screen is displayed with the message "Install a driver for this device," click [Apply this fix].
6. If a message is displayed asking you to "Set as default printer," click [Skip this fix].
7. If the message "Troubleshooting has completed" is displayed, click [Close the troubleshooter].

If the printer icon for the machine you are using is displayed under "Printer," the driver has been successfully installed.
If this does not solve the problem, perform the procedure under "Windows 7 (procedure B)."

Windows 7 (procedure B)

1. If [Found New Hardware] appears, click [Cancel] to close it.
2. Click the [Start] menu, then right-click [Computer]. Click [Properties].
3. Click [Device Manager]. The [User Account Control] appears. Click [Continue]. [Device Manager] appears.
4. Click [Show hidden devices] from the [View] menu.
5. In Windows 7, find [Other devices] in the list, and double-click it. Under the selected item, click the name of the model you are using or [Unknown device].
6. Go to the [Action] menu, and click [Uninstall].
7. In the "Confirm Device Uninstall" window, select [Delete the driver software for this device.], then click [OK]. Close [Device Manager].
8. Detach the USB cable from the computer, and then restart Windows.
9. Uninstall the driver. Carry out the steps from step 3 on page 63 "Uninstalling the Driver (Windows Vista/7)" to uninstall the driver.
10. Reinstall the driver again according to the procedure in "Setup Guide" ("Installing the Software") or P. 71 "Installing the Driver Separately".

Uninstalling the Driver

Windows 8/8.1

*If the driver is uninstalled without following the procedure given below, there is a possibility that it might not be able to be re-installed.

1. Turn off the machine and remove the cable connecting the machine to the computer.
2. Log on to Windows as an administrator.
3. Click [Desktop].
4. Point to the lower-right corner of the screen to display the charms, and click [Settings].
5. Click [Control Panel] and then click [Uninstall a program].
6. Select the driver of the machine to remove by clicking it, and then click [Uninstall].
7. The following removal confirmation message will appear. Click [Yes].
8. Click [Start] and then click [Desktop].
9. Open Explorer, and then open the drive and folder containing the driver. (*)
10. Double-click "SETUP64.EXE" (64-bit version) or "SETUP.EXE" (32-bit version).
11. If the [User Account Control] window appears, click [Allow]. The setup program for the driver starts.
12. Click [Uninstall]. Select the machine to remove and click [Start].
13. If it is necessary to restart your computer, a window prompting you to restart will appear. Click [Yes].
14. After the computer has restarted, open the Control Panel again, and click [View devices and printers].
15. If you can see the icon of the machine to remove, right-click it and click [Remove device].

(*)
When using the CD-ROM, specify the folder as shown below. (This is assuming your CD-ROM drive is the D drive.)
D:\Drivers\WIN8X64 (64-bit versions)
D:\Drivers\WIN8X86 (32-bit versions)
If you're not using the Roland Software Package CD, go to Roland DG Corporation's special website Easy Shape (http://www.rolandeasyshape.com) and download the driver for the machine you want to remove, and then specify the folder where you want to extract the downloaded file.

Windows Vista/7

*If the driver is uninstalled without following the procedure given below, there is a possibility that it might not be able to be re-installed.

1. Before you start uninstallation of the driver, unplug the USB cables from your computer.
2. Log on to Windows as an administrator.
3. From the [Start] menu, click [Control Panel]. Click [Uninstall a program].
4. Select the driver of the machine to remove by clicking it, and then click [Uninstall].
5. The following removal confirmation message will appear. Click [Yes].
6. From the [Start] menu, choose [All Programs], then [Accessories], then [Run], and then click [Browse].
7. Choose the name of the drive or folder where the driver is located. (*)
8. Select "SETUP64.EXE" (64-bit version) or "SETUP.EXE" (32-bit version) and click [Open], and then click [OK].
9. The [User Account Control] window will appear. Click [Allow].
10. The setup program for the driver starts.
11. Click [Uninstall] to choose it. Select the machine to remove and click [Start].
12. If it is necessary to restart your computer, a window prompting you to restart will appear. Click [Yes].
13. The uninstallation will be finished after the computer restarts.

(*)
When using the CD-ROM, specify the folder as shown below. (This is assuming your CD-ROM drive is the D drive.)
<< Windows Vista >>
D:\Drivers\WINVISTAX64 (64-bit versions)
D:\Drivers\WINVISTAX86 (32-bit versions)
<< Windows 7 >>
D:\Drivers\WIN7X64 (64-bit versions)
D:\Drivers\WIN7X86 (32-bit versions)
If you're not using the Roland Software Package CD, go to Roland DG Corporation's special website Easy Shape (http://www.rolandeasyshape.com) and download the driver for the machine you want to remove, and then specify the folder where you want to extract the downloaded file.

Uninstalling VPanel

Windows 8/8.1

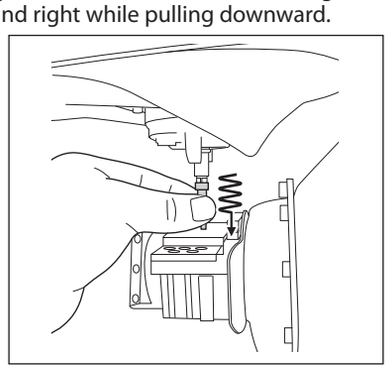
1. Exit VPanel. (Right-click (VPanel icon) in the task tray and select "Exit.")
2. On the desktop, point to the lower-right corner of the screen to display the charms, and click [Settings].
3. Click [Control Panel] and then click [Uninstall a program].
4. Select "Roland VPanel for DWX-4W" and click [Uninstall].
5. Follow the on-screen instructions to uninstall.

Windows Vista/7

1. Exit VPanel. (Right-click (VPanel icon) in the task tray and select "Exit.")
2. From the [Start] menu, click [Control Panel] and then click [Programs and Features].
3. Select "Roland VPanel for DWX-4W" and click [Uninstall] (or "Delete").
4. Follow the on-screen instructions to uninstall.

Responding to Error Messages

This section describes the error messages that may appear on VPanel and how to take action to remedy the problem. If the action described here does not correct the problem, if an error message not described here appears, or if you need to replace a part or an included item such as the collet, contact your authorized Roland DG Corporation dealer.

Error number	Message	Situation/error cause	Action
1000-****	**The % limit switch is not found. (% may be "X," "Y," "Z," or "A.")**	Operation may be inhibited by milling waste or an obstruction.	1. Turn off the power. 2. Remove any objects blocking operation of the machine and any accumulated milling waste. 3. Turn on the power, and then restart operation.
1006-****	**The % axis position has been shifted. (% may be "X," "Y," "Z," or "A.")**	The motor position may have been lost.	1. Remove any objects blocking operation of the machine and any accumulated milling waste. 2. Press and hold the operation button on the built-in panel. This will clear the error.
		The milling conditions may be excessively strict.	1. Review the CAM settings and the shape specified in the milling data. 2. Press and hold the operation button on the built-in panel. This will clear the error.
1017-0000	**The cover is open.**	The front cover was opened during spindle rotation. (For safety, the machine comes to an emergency stop if the front cover is opened while the spindle is rotating.)	1. Turn off the power. 2. Close the front cover. 3. Turn on the power.
101D-0000	**The milling bur cannot be released.**	The returning of the milling bur failed. The cause may be dirt inside the collet or on the ATC magazine or damage or deformation of the collet.	1. Follow the messages displayed in VPanel to forcibly release the milling bur. If the bur is difficult to remove because the connection portion is stuck, shake the milling bur to the left and right while pulling downward.  2. Perform collet maintenance. Carefully clean the inside of the collet. ☞ P. 23 "STEP 0: Spindle Run-In (Short)" 3. Clean the ATC magazine. ☞ P. 34 "Cleaning after Milling Finishes" If the error occurs again even after you perform the above operations, the collet may be deformed. In this case, replace the collet. Perform automatic correction after the replacement. ☞ P. 39 "Milling Machine Correction"
		The collet and milling bur are affixed together and cannot be separated. The cause may be dirt inside the collet or damage or deformation of the collet.	
		There is a possibility that the spindle unit is defective.	If the error occurs again even after you replace the collet, replace the spindle unit. After you replace the spindle unit, correct the milling machine. ☞ P. 49 "Replacing the Spindle Unit", P. 39 "Milling Machine Correction"

Error number	Message	Situation/error cause	Action
101E-0000	**The milling bur might be broken.**	The milling bur might be broken.	1. Press and hold the button on the machine to clear the error. 2. If the milling bur is broken or if it is out of position, replace it with a new milling bur. 3. The milling conditions may be excessively strict, so review them. 4. If the error occurs even after you review the milling conditions, perform collet maintenance. Carefully clean the inside of the collet. ☞ P. 23 "STEP 0: Spindle Run-In (Short)"
		The milling bur might be out of position.	
		The inside of the collet might be dirty.	
		The collet may have worn out.	If the error occurs again even after you perform the above operations, the collet may have worn out, leading to a decrease in its retention capabilities. Replace the collet with a new one. After you replace the collet, correct the milling machine. ☞ P. 53 "Replacing the Collet", P. 39 "Milling Machine Correction"
101F-0000	**The milling bur chucking has slipped out.**	The milling bur holder might be out of position.	1. Follow the messages displayed in VPanel to forcibly release the milling bur. 2. If the milling bur has been shortened due to wear or if the holder is out of position, replace the milling bur. 3. The milling conditions may be excessively strict, so review them. 4. If the error occurs even after you review the milling conditions, perform collet maintenance. Carefully clean the inside of the collet. ☞ P. 23 "STEP 0: Spindle Run-In (Short)"
		The milling bur might have been shortened due to wear.	
		The inside of the collet might be dirty.	
		The collet may have worn out.	If the error occurs again even after you perform the above operations, the collet may have worn out. Replace the collet with a new one. After you replace the collet, correct the milling machine. ☞ P. 53 "Replacing the Collet", P. 39 "Milling Machine Correction"
1020-0000	**The milling bur is too long.**	The milling bur in use might not be a dedicated product.	1. Set the correct milling bur in the stocker. 2. **If the error occurred during milling** Close the front cover, and press the built-in panel's operation button. Resume milling. **If the error occurred outside of milling** Close the front cover, and then press and hold the built-in panel's operation button. This will clear the error.
		The milling bur holder might be out of position.	1. Replace the milling bur with a new one. 2. **If the error occurred during milling** Close the front cover, and press the built-in panel's operation button. Resume milling. **If the error occurred outside of milling** Close the front cover, and then press and hold the built-in panel's operation button. This will clear the error.

Error number	Message	Situation/error cause	Action
1021-0000	**The milling bur is too short.**	The milling bur in use might not be a dedicated product.	1. Set the correct milling bur in the stocker. 2. **If the error occurred during milling** Close the front cover, and press the built-in panel's operation button. Resume milling. **If the error occurred outside of milling** Close the front cover, and then press and hold the built-in panel's operation button. This will clear the error.
		The milling bur might be bent or the holder might be out of position.	1. Replace the milling bur with a new one. 2. **If the error occurred during milling** Close the front cover, and press the built-in panel's operation button. Resume milling. **If the error occurred outside of milling** Close the front cover, and then press and hold the built-in panel's operation button. This will clear the error.
1022-0000	**The milling bur is not found.**	The milling bur has not been set or it may have been mounted on an incorrect stocker number.	1. Set the milling bur in the correct position. 2. **If the error occurred during milling** Close the front cover, and press the built-in panel's operation button. Resume milling. **If the error occurred outside of milling** Close the front cover, and then press and hold the built-in panel's operation button. This will clear the error.
		The ATC magazine or the milling bur might be dirty.	1. Clean the ATC magazine and the milling bur. ☞ P. 34 "Cleaning after Milling Finishes" 2. **If the error occurred during milling** Close the front cover, and press the built-in panel's operation button. Resume milling. **If the error occurred outside of milling** Close the front cover, and then press and hold the built-in panel's operation button. This will clear the error.
		There is a possibility that the ATC magazine is out of position.	If the error occurs again even after you perform the above operations, contact your authorized Roland DG Corporation dealer.
		There is a possibility that the spindle unit is defective.	If the error occurs again even after you perform the above operations, replace the spindle unit with a new one. After you replace the spindle unit, correct the milling machine. ☞ P. 49 "Replacing the Spindle Unit", P. 39 "Milling Machine Correction"

Error number	Message	Situation/error cause	Action
1023-0000	**Milling data error. The number of parameters is incorrect.**	There may be a problem with the milling data received from the computer. Alternatively, the data transfer may have failed due to the computer being under a high load.	1. Press and hold the operation button on the built-in panel. This will clear the error. 2. Check the milling data. **If there are no problems with the milling data** 1. Exit any unnecessary programs. 2. Restart the computer, and then perform milling again.
1024-0000	**Milling data error. The parameter is out of range.**		
1025-0000	**Milling data error. A wrong command is detected.**		
1026-0000	**Milling data error. The address is not defined.**		
1027-0000	**Milling data error. The parameter is not defined.**		
1028-0000	**Milling data error. The operation cannot be executed.**		
1029-****	**The spindle experienced an overload.**	The spindle stopped under a large milling load or other causes. The following are likely reasons. • The milling bur is worn. • A workpiece that cannot be milled by the machine is being used. • The milling conditions are too strict. • The spindle is defective.	1. Turn off the power. 2. Check the milling bur, the workpiece, and the CAM settings as well as the shape specified in the milling data. 3. Allow the machine to rest for some time before turning the power on because the motor may have overheated. If there are no problems with the milling bur, workpiece, or milling conditions, the spindle unit may be defective. Replace the spindle unit with a new one. After you replace the spindle unit, correct the milling machine. ☞ P. 49 "Replacing the Spindle Unit", ☞ P. 39 "Milling Machine Correction"
102A-0000	**The spindle experienced overcurrent.**		
102B-0000	**The spindle motor temperature is high.**		
103C-0000	**The spindle temperature is high.**		
1035-0000	**The spindle control circuit temperature is high.**		
102D-0000	**The spindle does not turn.**	The cable may be broken or the spindle unit may be defective.	Turn off the power and contact your authorized Roland DG Corporation dealer.
1038-0000	**Milling data error. No milling bur is selected.**	There is a problem with the specified milling bur details in the milling data.	1. Press and hold the operation button on the built-in panel. This will clear the error. 2. Check the milling data.

Error number	Message	Situation/error cause	Action
1039-0000	**The pressure of the compressed air is too high or low.**	It is possible that the compressed air is not being supplied or that the regulator settings have been incorrectly configured.	**If the error occurred during milling** 1. Adjust the compressor or the regulator so that compressed air with the appropriate pressure (0.6 MPa to 0.8 MPa) can be supplied. ☞ P. 17 "Preparing Compressed Air (Setting the Regulator)" 2. Close the front cover, and press the built-in panel's operation button. Resume milling.
			If the error occurred during collet maintenance ☞ P. 68 "Collet Maintenance Cannot Continue Due to an Error Occurring"
			If the error occurred in any other situations 1. Adjust the compressor or the regulator so that compressed air with the appropriate pressure (0.6 MPa to 0.8 MPa) can be supplied. ☞ P. 17 "Preparing Compressed Air (Setting the Regulator)" 2. Close the front cover, and then press and hold the built-in panel's operation button. This will clear the error.
		Even though the compressed air is set to the appropriate pressure (0.6 MPa to 0.8 MPa), if an error message is displayed, the pressure might have decreased temporarily.	1. Increase the pressure slightly from the current setting. Increase the pressure in increments of about 0.05 MPa, and set the pressure to a value where no error is generated. However, make sure that the setting does not exceed 0.8 MPa. Setting a pressure higher than 0.8 MPa may cause a malfunction. 2. Close the front cover, and then press and hold the built-in panel's operation button. The error can now be cleared.
		The regulator or other parts may be defective.	If the error occurs again even after you perform the above operations, contact your authorized Roland DG Corporation dealer.
1033-0000	**The coolant has run out.**	There may be no coolant in the tank.	1. Supply the appropriate amount of coolant. ☞ P. 18 "Filling the Coolant Tank/Replacing the Coolant" 2. **If the error occurred during milling** Press the built-in panel's operation button. Resume milling. **If the error occurred outside of milling** Press and hold the built-in panel's operation button. This will clear the error. If the error occurs again even after you perform the above operations, replace all the coolant.
		There may not be enough coolant in the tank.	
		The filter or the lines may be clogged.	Clean the inside of the coolant tank. If the filter is dirty, replace it. ☞ P. 49 "Replacing the Coolant Tank Filter"
		The coolant pump or sensor may be defective.	If the error occurs again even after you perform the above operations, turn off the power and contact your authorized Roland DG Corporation dealer.

Error number	Message	Situation/error cause	Action
1034-0000	**The coolant tank is not installed.**	The coolant tank may have been removed during machine operation.	1. Correctly attach the coolant tank. You have to push the coolant tank until you feel it click into place. 2. **If the error occurred during milling** Press the built-in panel's operation button. Resume milling. **If the error occurred outside of milling** Press and hold the built-in panel's operation button.
103B-0000	**The automatic correction is not yet finished.**	Automatic correction may not have been performed.	1. Press and hold the operation button on the built-in panel. This will clear the error. 2. Perform automatic correction. ☞ P. 39 "Milling Machine Correction"
		Automatic correction may have been cancelled before it could finish.	
		Automatic correction may not have been performed after updating the firmware to a version that required automatic correction to be performed again.	
		The versions of VPanel and the machine's firmware may not match.	Download the latest versions of VPanel and the machine's firmware from our special Easy Shape website (http://www.rolandeasyshape.com), and then install these versions.
103A-****	**D A N G E R ! ! The coolant is leaking!!**	Fluid may be leaking inside the machine.	Turn off the power and unplug the power cable. After that, contact your authorized Roland DG Corporation dealer.

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